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CLEAN AIR ACT AMENDMENTS OF 1987

HEARINGS

BEFORE THE

SUBCOMMITTEE ON
ENVIRONMENTAL PROTECTION

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

ON

S. 300, S. 321, S. 1351, and S. 1384

BILLS TO AMEND THE CLEAN AIR ACT

JUNE 19; JULY 22 AND 23, 1987

PART 2

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CLEAN AIR ACT AMENDMENTS OF 1987

Air Toxics

FRIDAY, JUNE 19, 1987

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION,
Washington, DC.

The subcommittee met at 9:04 a.m. in room SD-406, Dirksen Senate Office Building, Hon. Max Baucus presiding.

Present: Senators Mitchell, Baucus, Lautenberg, Chafee, Stafford, and Durenberger.

OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator BAUCUS. The hearing will come to order. We are, this morning, continuing a series of hearings on amendments to the Clean Air Act. One is on acid rain; another on nonattainment; and the hearing today is on toxic air pollutants under section 112 of the Clean Air Act.

Senator Mitchell, the chairman of this Subcommittee, is unable to be here to convene the hearing. He has an urgent meeting to attend this morning with the Iran-Contra Select Committee. He will be coming to join us if he can at a later time this morning.

The purpose of the hearing today is to essentially review the toxic air pollutant program, section 112 of the Clean Air Act, to assess some of its strengths and some of its shortcomings, and also to focus on a bill introduced by Senator Durenberger and several other members of this Committee to strengthen the program.

There have obviously been some serious shortcomings of the program, and Senator Durenberger, I think, had adequately addressed some of those shortcomings.

Without any further ado, we will begin the hearing and call the first panel, Bruce Maillet, who is the Director of the Massachusetts Division of Air Quality Control; Dr. Robert Forney, Chairman of the Executive Committee of the Chemical Manufacturers Association; and Mr. Dave Doniger, Staff Attorney for the Natural Resources Defense Council.

Mr. Maillet, why don't you begin?

STATEMENT OF BRUCE K. MAILLET, DIRECTOR, MASSACHUSETTS DIVISION OF AIR QUALITY CONTROL, ON BEHALF OF THE STATE AND TERRITORIAL AIR POLLUTION PROGRAM ADMINISTRATORS AND ASSOCIATION OF LOCAL AIR POLLUTION CONTROL OFFICIALS

Mr. MAILLET. Thank you. Mr. Chairman, members of the Subcommittee, my name is Bruce Maillet, and I am the Director of the Massachusetts Division of Air Quality Control. I appear here today on behalf of STAPPA, the State and Territorial Air Pollution Program Administrators, for which I serve as Chairman of the Air Toxics Committee, and ALAPCO, the Association of Local Air Pollution Control Officials.

STAPPA and ALAPCO are the national associations of air pollution control agencies in the 54 States and territories and more than 150 major metropolitan areas across the country.

I would like to begin by commending Senator Durenberger and the cosponsors of S. 1384 for this effort to address one of our Nation's most threatening health and environmental air problems: toxic air pollution. Your initiative in introducing this important and long overdue piece of legislation will greatly enhance the ability of State and local air officials to more aggresively and effectively regulate toxic air pollutants. For this, we applaud you. I would also like to thank you for allowing me to present the associations' views on this bill.

The Environmental Protection Agency has concluded that routine releases of a variety of toxic air pollutants may cause as many as 2,000 cases of cancer each year, with individual risk running as high as one in three individuals.

Attempts to quantify the magnitude of the situation does not end here. The risks associated with accidental releases of toxic air pollutants add an entirely new dimension to this problem. EPA studies show that between 1981 and 1985, there have been nearly 7,000 reported cases of toxic chemical accidents resulting in 138 deaths and over 4,700 injuries.

These statistics illustrate the severe health consequences associated with exposure to toxic air pollutants. In fact, EPA has concluded that the risks to public health from air toxics far exceed those from most other environmental media.

Yet despite overwhelming evidence that the most widespread human exposure to toxic air pollution occurs from breathing the air around us—and I can envision pictures of cities in bubbles and people wearing masks because of toxic air pollution—the Federal program for regulating hazardous air pollutants has been largely ineffective to date, relying upon implementation of Section 112 of the Clean Air Act and voluntary efforts of State and local air quality agencies to control "high risk" sources and the "toxic soup" that exists in many of our cities.

Section 112 of the Clean Air Act requires EPA to identify hazardous air pollutants and, accordingly, set national standards. Unfortunately, progress under this system has been painfully slow. In the past 17 years, EPA has listed only eight hazardous pollutants and has set national standards for only seven of these. This relative inaction is simply unacceptable.

In addition, STAPPA and ALAPCO have serious reservations about the risk management process by which EPA makes its decisions to regulate hazardous air pollutants under Section 112. Under a risk management approach, sources that emit carcinogens and other air toxics are able to escape control requirements if EPA determines that the national risk is not sufficient to warrant controls even though the individual risk from these facilities may be quite high.

In fact, EPA has neglected to regulate a number of facilities that pose risks to individuals as high as 1 in 100. STAPPA and ALAPCO believe it is inappropriate for EPA to accept risks in the air program into our ambient air that are over 1,000 times higher than the risks from other environmental media and are concerned that such a policy could continue to encourage treating the atmosphere as a dumping ground for other environmental problems.

As a result of the ineffectiveness of the Federal regulatory program for air toxics, responsibility to develop and implement regulatory programs has been placed in the hands of State and local agencies. While it is entirely appropriate for State and local air quality agencies to continue to play a significant role in controlling toxic air pollutants, we are convinced that success will only be realized if our efforts are complemented by a comprehensive and effective Federal regulatory program.

Our members have adopted a position on toxic air pollutants that seeks to address the development of such a comprehensive Federal program. Our position recommends that the process of identifying hazardous air pollutants be simplified and accelerated, and at a minimum, BACT be required on all new and existing facilities and research efforts be increased and accelerated.

Our associations are currently in the process of revising our policy and will be considering refinements next week at our semiannual meeting. S. 1384 embodies many of the principles that STAPPA and ALAPCO have already adopted or will seriously consider next week. This important piece of legislation proposes to increase Federal involvement in regulating toxic air pollutants by establishing a comprehensive national air toxics control program.

In addition, like STAPPA and ALAPCO, S. 1384 recognizes the need to accelerate the identification and control of air toxics. Moreover, this bill includes provisions for technology controls for both new and existing sources and calls upon both the Federal Government and industry to expand research efforts.

We commend the Senator for the establishment of an area source toxics control program and would urge the inclusion of a separate section relative to mobile sources and the emissions of toxics from those sources.

We have some specific comments on detailed portions of the bill which we will submit for the Committee's consideration. Thank you.

Senator Baucus. Thank you very much, Mr. Maillet.

Next is Dr. Forney.

STATEMENT OF DR. ROBERT C. FORNEY, CHAIRMAN, EXECUTIVE COMMITTEE, CHEMICAL MANUFACTURERS ASSOCIATION

Dr. **Forney**. Mr. Chairman, members of the Subcommittee, my name is Robert C. Forney. I am an Executive Vice President of the DuPont Company, and I am an officer of the Chemical Manufacturers Association on whose behalf I am here today to testify.

The CMA, as you know, is a non-profit trade association whose members account for some 90 percent of the total U. S. production capacity for basic industrial chemicals.

The Association is firmly committed to effective regulation in the area of air toxics. We have been actively involved in Federal, State and local initiatives to deal with the release of toxic materials into the air, and we have initiated a strong industry program in this area. I will comment more on that later.

We believe very strongly that the Environmental Protection Agency, along with the States, should be provided with all the technical and legal resources that are necessary to achieve air quality goals. But having said this, we do not believe that Federal legislation is necessary or desirable at the present time to enable Federal and State governments to carry out this important mission.

The present law, together with current private and government initiatives, provides a sound framework for adequate control. I will state four main reasons why we believe that to be true:

First of all, after a slow start and considerable delay, and we were just as critical of that delay as anyone else was, we believe that EPA is now making good progress in regulating air toxics. While the Clean Air Act empowered EPA in 1970 to regulate air toxics, the key to getting going, as we see it, was the comprehensive national air toxics strategy that was adopted by EPA just two years ago.

With this strategy, the section 112 regulatory program for hazardous pollutants is now making substantial progress. Moreover, EPA actions to control volatile organic compounds to prevent ozone formation and other agency action to establish new source performance standards have made major contributions to the control of air toxics. Really, CMA applauds this process, and we encourage the Agency to proceed with its regulatory programs.

Second, in addition to stepped up Federal action, nearly all the States have enacted and are very active in their own air toxics programs.

Third, in addition to the Clean Air Act provisions, implementation of the recently enacted title III of the Superfund Amendments Reauthorization Act, SARA, will enable EPA and the States to obtain valuable information on air toxics. Such information could form the basis for programs to control process emissions as well as to prevent any sudden releases of large quantities of toxic materials.

CMA believes that title III is a constructive law, and we are solidly behind the efforts of EPA and the States to build the substantial data base which it will produce.

In light of the extensive scope of the information that will be obtained from title III, it seems to us that any proposals for new air toxics legislation are, at the present time, quite premature. Both the States and the EPA are heavily taxed in meeting their considerable responsibilities under title III. We are concerned that requiring a new and major regulatory effort at this time will frustrate implementation of this important new law.

We urge that new legislation be postponed until SARA Title III has been given a chance to do the job that Congress intended and to provide the data from which properly constructed legislation could be derived, if needed.

Fourth, in concert with the efforts of EPA under the Clean Air Act and SARA title III, other private and government efforts are making substantial contributions to our understanding of air toxics. One significant initiative, we believe, is CMA's own air quality policy, adopted in 1986. Most of our member companies are well into implementation of this policy. In addition to inventorying emissions and conducting health assessments, member companies have reduced emissions by changing and improving their work practices and by installing better equipment.

They have reduced the potential for sudden releases by dropping the amount of stored chemicals. I know that at DuPont, we have, in the past several years, committed major resources in terms of expenditures and personnel to further safeguard employees and the public against air toxics.

EPA's continuing progress in implementing a national clean air strategy, the potential value of information yet to be gained under SARA title III, and the effects of many private and state initiatives all suggest that this is not the time to introduce new clean air legislation at the Federal level.

But in addition to these reasons why no new legislation is needed, there are specific reasons why the draft legislation, which is really all that we have seen at CMA, would be particularly inappropriate, in our opinion.

First, the language of the proposed bill is broad, vague and confusing. It would appear to encompass so many substances that EPA's efforts in regulating air toxics would be dissipated and diverted from substances of real concern to the substances that pose no genuine threat to public health.

Second, the draft bill confuses process emission controls with accidental releases. Experience shows that the effective control of air toxics must recognize the key differences between these two types of releases, one on-going and one only potential, and they have got to fashion programs designed to address the unique characteristics of each.

Third, the controls proposed in the draft legislation are extremely severe and go far beyond existing law, attempting, in effect, to legislate zero risk. The proposed legislation seeks to ban any release of any amount of many acutely toxic materials, possibly household ammonia or chlorine in swimming pools. This is completely unnecessary. Many of these materials have very widely recognized safe threshold levels for which there is no negative impact on public health.

In summary, CMA believes that the efforts of the EPA and State and local governments, along with private initiatives, have placed the nation on the right track with regard to regulating air toxics.

We believe that existing laws enable EPA to continue this progress and that new Federal legislation is uncalled for and would be particularly premature in the absence of the data that are expected from implementation of SARA under Title III. Finally, the draft legislation, we think, is significantly flawed.

I thank you very much, Mr. Chairman. At the proper time, I would be happy to respond to your questions.

Senator BAUCUS. Thank you very much, Dr. Forney.

Next is Mr. David Doniger, National Resources Defense Council.

STATEMENT OF DAVID DONIGER, SENIOR STAFF ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL, INC.

Mr. DONIGER. Thank you, Senator I am speaking today for the dozens of member organizations of the National Clean Air Coalition. We applaud Senator Durenberger and the other co-sponsors of S. 1384 for making a bold stride forward in the fight against toxic air pollution.

It is time to stop treating the atmosphere as the largest hazardous waste dump of them all. The air is the route of the greatest human exposure to toxic chemicals. You drink two liters of water a day, but you breathe 15,000 to 20,000 liters of air a day. You have some choice over the water you drink; you don't have any choice over the air you breathe.

Recent legislation for hazardous wastes, drinking water, and surface water pollution has markedly strengthened control of toxic pollutants in these media. It is past time to do the same for toxic air pollutants in the air.

You will hear this morning from people with stark and disturbing stories about toxic air pollution in their home towns. My purpose is to give a national overview of the serious hazards.

There are literally billions of pounds of toxic compounds emitted without restriction into the air Americans breathe air year. They are released from hundreds of large factories, from thousands of smaller industrial and commercial facilities, and from millions of cars, trucks and buses.

They are emitted on a spectrum from daily, constant leakage during what you might call "routine" operations to catastrophic releases in industrial accidents. These emissions take an annual toll of thousands of cases of cancer, acute illness and chronic disease.

Many of the pollutants can kill or injure immediately; others are deadly after years of exposure to even low concentrations. Virtually every American is exposed. Tens of millions of us live near dangerous chemical facilities, oil refineries or the like. One hundred million or more of us live in an urban soup of known and suspected toxic chemicals grown which we are not protected by the six National Ambient Air Quality Standards.

Hundreds of miles downwind from pollution sources, a toxic rain contaminates major ecosystems like the Great Lakes, causing severe damage to fish and aquatic resources and indirectly endangering people who eat the fish, for example. There are many examples in my testimony which I will submit for the record.

In 1985, EPA concluded that just a small portion of the witches brew, some 15 to 45 chemicals, could themselves cause up to 1,700 cancer cases in the U.S. There are additional unquantifiable risks from other compounds and mixtures and from the byproducts of these chemicals that are formed in atmospheric chemical reactions.

As Bruce Maillet has said, the risks around many sources are shockingly high. Around many facilities, there are risks as high as one in ten or greater. There are hundreds of people subject to more than in 100 risks. There are tens of thousands or people around some of these facilities subject to greater than a 1 in 1000 lifetime chance of getting cancer.

There are other toxic effects, neurological disorders, immunological, and reproductive effects, as well.

In addition, there is the serious risk of accidental emissions and the dangers therefrom. The figures on the accident toll have already been cited by STAPPA, and are included in my written statement, and I won't repeat them right now.

The EPA has documented much of this problem but, unfortunately, hasn't done very much about it. I speak for the entire National Clean Air Coalition in welcoming this bill and the subsequent amendments introduced on mobile sources and certain other provisions.

The "hazardous air pollutant" provisions clean up some of the most glaring EPA errors of law in carrying out the existing law. The "toxic air pollutant" provisions take a good, strong cut of pollution out of the air from 311 chemicals that are on the SARA Section 313 list.

There can't be any question that the SARA section 313 list contains pollutants that deserve to be controlled. According to a recent EPA study, more than half of the substances on that list are carcinogenic; more than half are mutagenic; about 45 percent are acutely toxic; about 40 percent are chronically toxic and so forth. If there are any pollutants on the list which should not be, the bill allows for their removal.

The "extremely hazardous" provisions on accidents I will not say much about, because a later witness from the Environmental Policy Institute will go through them, but we are very encouraged and very supportive of them. I would like to mention several changes which we would recommend be included in the bill.

First, the deadlines, especially for getting out the toxic air pollutant standards, are too long. EPA does not need ten years to put out technology standards for major categories of sources, most of which it is quite familiar with already.

Second, the bill does not include an important category of pollutants which is not on the section 313 list, polycyclic organic matter, the including pollutant dioxin, and the Subcommittee should add this group of compounds to the toxic air pollutants list.

Third, the bill should provide for phased reductions in the use of cancer-causing solvents with an objective of eventually totally replacing them over a decade. Some of these compounds are emitted in the million, even billion pound category each year.

Fourth, there is an opportunity here, when dealing with the aera sources, which we strongly support, to gain the help of the chemical suppliers in controlling those pollutants. Public health damage from these emissions should be counted as a cost of doing business for the producers and distributors of them. We urge the Committee to add provisions outlined in my written statement that would extend some responsibility to the producers and the distributors.

Fifth, we look forward to provisions which we understand are to be developed by members of the Committee on municipal waste incinerators. There are more than 170 of them under construction or on the drawing boards. They emit a slew of toxic pollutants ranging from dioxins to heavy metals.

Last, I would like to make a comment on the use of risk assessment. We have deep objections to EPA's unconscionable disregard for danger to the most exposed individuals. The bill constructively answers by focusing EPA exclusively on danger to the most exposed people. Nonetheless, we have severe reservations about the legitimation of a "negligible risk" test in the bill, even if negligible risk were defined as smaller than one chance in a million.

The moral consequences of parceling out death and illness through a giant wheel of fortune are staggering. Aside from this, it is questionable whether quantitative risk assessments are scientifically sound. William Ruckleshouse once conceded that you wouldn't try to put a man in orbit on the strength of these tests.

We therefore have serious questions about the negligible RBK test. We strongly support the bill and we look forward to working with the Committee in the coming weeks to fashion toxic air pollutant amendments based on the bill.

Thank you.

Senator BAUCUS. Thank you, gentlemen. Since the hearing has begun, two Senators have appeared. One arrived during the period before and one arrived subsequent to the convening of the hearing. I think they both have opening statements.

Senator Durenberger, why don't you give your opening statement and Senator Lautenberg can proceed with questioning?

OPENING STATEMENT OF HON. DAVE DURENBERGER, U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator DURENBERGER. Thank you, Mr. Chairman. I want to begin by expressing my appreciation to Senator Mitchell and you, Mr. Chairman, and the other members of the Committee for the opportunity to have this hearing today and for the priority which you have assigned to the air toxics issue as we prepare to reauthorize the Clean Air Act.

For the rest of you, I want to say that I know that Max Baucus, in particular, has a deep and abiding interest in this issue, because it was his legislation in 1984 that led the Environment Committee to include amendments to section 112 in the bill that we reported that year, and that language served as a foundation for the bill which we introduced on Wednesday. So it is his leadership on this issue that is so valuable to all of us.

We will hear many statistics this morning as to the impact of toxic air pollution on human health, and it is not a happy story. I have statistics of my own to share.

In conversations with staff from the Environmental Protection Agency, we have been told that some 2,600 chemical plants and other industrial facilities have been reviewed to determine the toxic effects of the air initiatives. For approximately one-fourth of these facilities, 700 plants, EPA has determined that the risk of cancer to persons receiving maximum exposure in the vicinity of the plant is greater than 1 in 10,000, or 12-4, as in the jargon of risk assessment.

Whatever we may think of risk assessment, and most of us here view it with some suspicion, even the EPA agrees that risks above 1 in 10,000 are unacceptable. If we allowed operating facilities into the Superfund program, along with the banned dumps, these 700 high-risk facilities would be immediate candidates for the national priority list, and that is unacceptable.

It is impossible to pretend that EPA is running an adequate program to respond to this threat, impossible. In 17 years, the Agency has regulated seven pollutants, and it is true that there has been a flurry of Federal Register notices in the last year or so, but Federal Register notices announcing even good intentions don't improve air quality in America.

The problem with the air toxics program at EPA was well described in a 1983 report by GAO. "The program has been subject to a continual series of new starts, reorganizations and policy reorganizations marching up the hill and down again, never joining the battle for public health. Each administrator makes a fresh start, then leaves the Agency before the results are produced."

It is time for the Congress to involve itself with this program. It is time to give the Agency a detailed plan with clear objectives and milestones so that Americans can measure progress along the way.

We are not asking the agency to start over once again. S. 1384 builds on the most recent program reorganization that EPA announced in 1985. It builds on the emergency planning and the community right-to-know amendments Congress adopted last year in the Superfund. So we are not starting over here.

But we are commanding that the Agency follow through; that it actually put into place standards and programs that will protect public health from air toxics. In 1985, the agency began to move away from the pollutant-by-pollutant approach to air toxics and to regulate categories of sources, classes of pollutants. This legislation moves in that same direction.

In 1985, EPA identified so-called area sources as a large part of the toxic problem in metropolitan regions. This bill establishes a specific control objective for area sources and builds on existing authorities for control programs. In 1985, EPA began programs to plan for a response and to anticipate the consequences of chemical actions.

This bill makes the next logical steps to improve our accident prevalence and our response capability.

In 1985, EPA said it wished to make greater use of the resources of State and local government in the air toxic control program. This bill authorizes and supports State programs.

In 1985, EPA promised the nation better control of air toxics. This bill simply tries to assure that promise will be kept.

Mr. Chairman, I will close my comments this morning by revealing my parochial interest in this issue. One of the more controversial pieces of the bill you have introduced is the provision that environmental values be incorporated in the standard-setting processes for air toxics. EPA and the industry will aggressively oppose this provision.

Why protection of environmental values is opposed by the Environmental Protection Agency is beyond my comprehension. But I have an illustration of the environmental problem with me this morning. Those of us who subscribe to the National Geographic received our July issue in the mail yesterday, and the lead story in the current issue of the National Geographic is "The Problems of the Great Lakes." That is where my parochialism comes in.

The map this month is a map of the Great Lakes and all of their problems. Part of the problem, as you can well imagine, is the problem of high water, but much of this article focuses on toxic pollution of the Lakes and the impact of that pollution on aquatic life and wildlife resources.

I will read just two sentences from this article.

> Fallout from fossil fuel emissions, waste incineration and evaporation contribute volatile organic chemicals and heavy metals whose effects are only now being understood. Lake Superior gets four-fifths of its toxics from the air. Lake Michigan, one half.

The article goes on to detail the extraordinary impact of toxics on the Great Lake system. In some areas, high percentages of the fish population have tumors and skin lesions. Human health is also affected. Fish consumption advisories are a frequent occurrence on the Great Lakes and 20 million Americans take their drinking water from these five lakes.

The article, appropriately, ends on a hopeful note, because it acknowledges and commends the action which this Committee took in the Clean Water Act Amendments to establish a Great Lakes Research Office and Great Lakes programs at EPA.

I would like to give the folks of the Great Lakes region, my region of the nation, some more by passing the legislation that is before us, including, for the first time, a recognition that air emissions of toxic chemicals are a significant environmental problem in the Great Lakes and across this country.

Thank you, Mr. Chairman.

Senator **BAUCUS**. Thank you, Senator Durenberger.

Senator Lautenberg, do you have a statement?

OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator **LAUTENBERG**. Thanks, Mr. Chairman. I want to commend you for holding this hearing today on air toxics. I was pleased to join with Senator Durenberger and other members of the Committee in introducing the Toxic Air Pollution Control Act, which is S. 1384.

EPA and our current laws have failed to regulate and control the release of these pollutants. In 1970, section 112 was included in the Clean Air Act. Its purpose was to address the problems of highly toxic air pollutants.

To date, EPA has regulated only seven of these substances and yet there may be hundreds of them out there. This situation exposes citizens in New Jersey and throughout the country to risks of cancer and other serious illnesses. We have got to act to change this.

In May of 1985, EPA published its findings on the air toxics problem. They looked at cancer risks due to 15 to 45 toxic air pollutants. EPA concluded that the risks range from 1,300 to 1,700 cases of cancer annually.

Yet toxics continued to pollute our air. New Jersey's Department of Environmental Protection has compiled detailed data on ten toxic air pollutants. This shows that about 4.5 million tons of these pollutants are released into our State annually. The DEP also reports that over 350 accidental releases are reported every month in the state. Forty-eight of these are deemed serious enough to merit response by the State.

It is time to act to protect citizens in New Jersey and across the country. It is time to move ahead. A first step was the enactment of the right-to-know provisions I sponsored in the Superfund amendments last year. These provisions put in place emergency planning, notification and emissions reporting requirements for dangerous substances. They will help prevent and reduce the risks of accidental releases and enhance emergency response.

The program will also provide additional information on the sources and types of toxics being emitted into the environment on a daily basis.

A second step we should take is to get an emissions control program up and running. That is what the bill that we have introduced is designed to do. It will take the information from the right-to-know programs and apply it to a control program.

I look forward to working with Senator Durenberger and the Chairman and others on the Committee to address this problem. Today's hearings give us an opportunity to examine a variety of views on the issues. We have already heard a variety.

I would like to extend a special welcome to two of the witnesses from the State of New Jersey. One is Elsa Bynoe-Andriolo and also Dr. Bernard Goldsten. I hope that I will be able to stay long enough to hear their testimony.

I thank them and our other panelists. Dr. Forney, we may disagree on a point or two, as with all of the witnesses. We agree just a little bit more with some and a little bit less with others. Some we could argue with, on a point of view, but we all want to get, I think, to the same point.

Mr. Chairman, I want to make mention here of Senator Mitchell's contribution to this issue over the past month of hearings. He has pushed the clean air debate forward very vigorously on a variety of fronts. I thank you very much for the opportunity to participate in this hearing today and commend you for holding it.

Senator BAUCUS. Thank you, Senator.

Senator Mitchell plans to come to the hearing later. He is unable to be here at this moment.

Senator Chafee, do you have an opening statement?

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator **Chafee.** I don't have a formal statement, Mr. Chairman, but I just would like to say that what we are doing now is rather akin to what we did in the Clean Water Act. As you recall, we started out dealing with the ordinary pollutants, and it was relatively easy. Then we got into the toxics, which were far more difficult.

Now, it seems to me, we are doing somewhat the same thing in the Clean Air effort; we are moving from the regular pollutants to the toxics, which is far more difficult, but just as important or even more important. It is going to require some tough measures just like we went through in the Clean Water effort.

I think, in listening to the testimony here, Mr. Doniger's and others, and what Senator Durenberger has to say, that it brings focus to a problem that we have all seen, the tragedies that we have all seen, in that we have known individuals who have led the exemplary lives of not smoking and taking good care of themselves and not being overweight and all the things that health addicts are meant to do, eating right, and then they get cancer.

We all said to ourselves in those instances, "Why would that individual get cancer?' It may well be that it has come from these very circumstances that Senator Durenberger and Mr. Doniger and others have outlined.

I want to say that I am a cosponsor of this legislation, and I think it is terribly important that we get on with it, as you have started today, Mr. Chairman and Senator Mitchell, with these hearings. It is a very, very important phase of the clean air problem. It is tough; it is extremely difficult. I suppose it will make all our efforts in connection with the Clean Water Act pale, although I don't think many things can be more difficult than that. In any event, I am glad we have started. Thank you.

Senator **Baucus.** Thank you, Senator Chafee. I will begin now the first round of questioning with Senator Durenberger.

Senator **Durenberger.** Thank you, Mr. Chairman.

I appreciate the comments of my colleagues about the legislation, which, as I indicated, is an important part of putting this forward.

Dr. Forney, after I get through all the pejoratives and the exaggerated adjectives of your testimony, let me get down to the heart of the objection. First, that the bill isn't necessary because the Clean Air Act is working fine;

Second, we need more time to get the information from SARA, which is, of course, just on the books since 1986;

Third, the regulation would be too stringent because of the definitions of BACT, the Best Available Control technology; and

Fourth, the bill, we might say, was enacted mixing apples and oranges, confusing the regulation of routine emissions with catastrophes.

Have I sort of captured the phrase of it?

Dr. **Forney.** The only thing you omitted, Senator, is the view that the States have already in place and enacted very effective programs. Certainly, we feel them in our activities even more than we do section 112.

Senator DURENBERGER. Let me, in my five minutes here, take these one at a time. To begin with, the fact that the Clean Air Act works. I will read part of your testimony.

> EPA's criteria pollutant programs appear to have done more to reduce air toxic levels than have regulatory actions aimed at specific compounds. It is clear from the current regulatory program that section 112 of the Clean Air Act is not always the appropriate vehicle or most effective means to control air toxics. In addition to the programs mentioned above, section 111(d)(1) provides for regulations to be established for substances not covered by ambient air quality standards or NESHAPS. This section has rarely been used by EPA, but it gives EPA the authority to regulate any additional toxic air pollutants . . .

Reading that, it is difficult for me to understand how you can conclude that the law doesn't need amendment. You have done more by accident, it seems to me, than by design, because we have now some obscure, never-used section of the law that your testimony says is suited to do what section 112 cannot do.

If there were a grand jury hearing or something like that, I would indict Section 112 just on the basis of your testimony. Are you personally comfortable with the notion that section 112 does not need amendment, or is it possible that you yourself have, at other times, in other forums, advocated modification of section 112 to better regulate toxics?

Dr. FORNEY. Let me start by saying that while I am a businessman who has been very heavily involved in these activities, I am not a lawyer, nor am I a high-class environmental engineer. So I may call, from time to time in my responses, on one or more of three people: Mr. William Gulledge, who is Associate Director of the Environmental Division of CMA; Mr. William Walsh, who is a Consultant Manager in Du Pont's Engineering Department; and Mr. Vernon Rice, who is a Managing Counsel in the Legal Department of the Du Pont Company.

Senator, you referred to a paragraph on page 5 of my testimony, which speaks to the matter of dealing with toxic air pollutants which do not fall under section 112. I think that has to be read in the context of the preceding two or three pages in which we speak to the progress that has been made under section 112 since the adoption of the air toxic control strategy by EPA in 1985.

We were, in CMA, I think, as critical as anyone of the progress that was made under section 112 in the 1970s and the early part of the 1980s. The main thrust of my testimony there is that since 1985 and the adoption of the strategy, there has been a considerable acceleration in the use of section 112 and that actually, in various stages of progress, either listed or about to be listed or under study and so on, there are some 81 chemicals involved, as you see, I think, on page 3, where I mention that.

Senator DURENBERGER. Yes.

Dr. FORNEY. The point that is made there on page 5 is that for those that are rejected, as not applicable under section 112, there is already in place a legislative process that can address them, and section 111(d)(1) is a process that can do that.

But we think the main thrust of this thing is going to be the listing under section 112.

Senator **Durenberger**. The fact that in the past you have suggested amendment to section 112 in no way reflects your current concern with the way that it is being implemented. Is that true?

Dr. **Forney**. Our past view on this thing, Senator, has been that we ought to get going under 112, not necessarily that we need modification, but that it wasn't being implemented, and that was our consistent criticism until the action that began after the adoption of the strategy in 1985.

It wasn't so much that it needed amendment as it has that we needed to get going and start implementing.

Senator **Durenberger**. The second assertion in the statement is that we should not legislate in this area now to give the new emergency planning community right-to-know actions we created in Superfund a chance to provide additional information.

As I tried to indicate in my opening statement, what we are doing here is building on that legislation. We are trying to anticipate or to take the next logical steps, not huge, great big leaps, but what appear to be logical steps.

Do you see anything in the bill that has been introduced which is in conflict with SARA's title III provision?

Dr. **Forney**. I can't identify anything as being in conflict, although I will say we may submit later written testimony on that. We only got a copy of this bill very, very recently. It was undergoing considerable redrafting, as you know. I don't see anything that is necessarily in conflict.

Really, our point with respect to SARA title III is that SARA title III is going to produce a lot of information. We are producing a lot of information ourselves for SARA title III, and all companies are producing a lot of information for it.

When that information on emissions that are actually taking place is known, we will be able much more intelligently to address what it is that we need to do, if anything, with respect to additional control of those emissions.

Senator **Baucus**. Mr. Doniger, what about that? Mr. Forney says, "Sure, the Act wasn't working very well and EPA got going. We will act together; that it is moving forward; information is there and let's make 112 work."

What is wrong with that argument?

Mr. **Doniger**. The record of section 112 speaks for itself. Seven pollutants have been regulated in 17 years. Of those pollutants, only a few of the sources of each of those pollutants was regulated; a backlog already of eleven chemicals that have been deemed by EPA to be carcinogens but aren't being regulated. Yet beyond that, there are many more chemicals that are carcinogens or otherwise toxics that are not even sceduled for anything yet.

Senator **Baucus**. What are some of those?

Mr. **Doniger**. The eleven are listed in the hazardous air pollutant section of the bill. These are the intent to list chemicals. They range from chromium to methylene chloride. Each one of them is either a known or a probable human carcinogen according to EPA. Others are on the section 313 list.

I have heard industry people, at the conferences that are held on this subject from time-to-time, concede that section 112 does not work and needs amendment. I am disappointed that they would take the position that everything, as far as the law goes, is hunky-dory right now.

Senator **Baucus**. Why not, for purposes of the discussion here, put more teeth in section 112, maybe some deadlines and some hammers? Why not take that approach?

Mr. **Doniger**. Those are included in the bill, and we support that very much. Beyond that, we need to get away from this incredibly resource-intensive focus on individual chemicals and do what the Clean Air Act has done so well in other areas, which is to take a good, solid chunk of the pollution out of the air with the application of available technology and protect people, at least to that extent, while the research goes on.

As for the comment about the implementation of the Superfund community right-to-know law, this bill sets out a process over the years for the setting of those standards. During that period, the information is being generated by the reporting could be very usefully fed in to the standard setting process.

There is no reason to sit and wait for that information now, when we already know that there are billions of pounds of these compounds being put in the air, before instructing the EPA they should develop a program of standards.

Senator **Baucus**. What about that, Mr. Forney? We have the information; why not move?

Dr. **Forney**. I think we have to recognize the difference between the means and the end here. The end that we are looking to control is the protection of public health. The means that we are seeking is proper control of air emissions.

The EPA study that Mr. Doniger referred to in his testimony in 1984 indicated that of the cancer incidence that we have in this country, something in the neighborhood of two-tenths of 1 percent is due to toxic air pollutants, and of that, perhaps only 20 to 25 percent comes from stationary sources. The remainder comes from other things like woodburning stoves and fireplaces and so on.

So we are dealing with a very, very small public health risk, and what we need to do is understand how to address that risk in a rifle shot manner by understanding more of the data involved in terms of what is actually producing that risk before we move precipitously to regulate in a fashion that will probably produce little, if any, effect on public health and would produce great economic dislocation.

We need to get more data, and we are proceeding, I think, in a steady fashion now, especially in the last 2 years, with respect to section 112.

Senator **Baucus**. Mr. Maillet, do you have any views on this debate here?

Mr. **Maillet**. Yes, Senator, thank you.

First, the leadership of the past relative to the Clean Air Act has resided with EPA. Recently, EPA has fallen down in establishing NESHAPS or standards for hazardous air pollutants.

Dr. Forney was correct to say that the State and local agencies are moving forward to establish those programs. It is only because of a lack of EPA initiative in this area that the states have chosen that route.

It is very difficult for the States and local agencies to develop standards, to develop regulations and develop the control technique guidelines and the mechanisms necessary to control the sources that we are dealing with. It is very difficult for Massachusetts to deal with area sources in a very geographically small State.

The lack of leadership by EPA has caused the States to move in this area. This has caused a great inconsistency amongst programs. Some States and local agencies cannot, by law, by their own local ordinances or their State laws, establish programs that EPA has not mandated. They cannot move in that area.

We feel that each individual in the country deserves the same protection. The same protection that I can give in Massachusetts should be given to somebody in some other adjoining State.

Some of the issues in Massachusetts may never be national problems and may never reach the level that would achieve a NESHAPS.

Dr. **Forney**. Can I speak to that for a moment, basically, to say that we agree with that? The disparity of State regulations is a defect in the present system, and we would strongly encourage EPA to continue the process that has begun to have uniform standards and uniform technological information provided to the States so that they do not have to provide this themselves.

Mr. **Doniger**. There is no process underway.

Senator **Baucus**. Excuse me.

I am sorry, Mr. Maillet, you were interrupted. Do you want to continue, sir?

Mr. **Maillet**. Thank you, sir. I think the fact that EPA has listed or has said to everybody, to the world, that they intend to list a pollutant and then projected a four-year timeframe to establish those standards has literally left States that were moving in that direction to regulate that pollutant in limbo.

How are we, as an individual, to say, "Yes, we think it should be this," when everyone else is coming along and saying, "EPA is studying it. They will have an answer in four years."

That really has been a very poor situation for us to try to deal with.

Senator **Baucus**. My time is up.

Senator Lautenberg?

Senator **Lautenberg**. Mr. Chairman, you have sparked an interesting debate here with your questions. I think we ought to just let the panel go. Of course, good discipline doesn't permit that. The exchange produces a lot of interesting information.

Dr. Forney, title III emissions data that we have under SARA, that can be applied to the control program S. 1384. The control program is phased in over a ten-year period. The data starts coming in in July of 1988. How can title III be a justification for waiting to pass this legislation? That is really a long time to accumulate this information. Is there a current risk that we ought to be concerned about?

Dr. **Forney**. My view, from the data I quoted from derived from the EPA study, is that there is not an acute problem; there may be a risk that needs to be addressed on a rifle shot basis. Once we understand where the risks are, Senator, and it is definitely our belief from the kinds of data we are accumulating now for title III, that it will provide information that will facilitate understanding where, if anyplace, that additional legislation needs to be provided.

Senator **Lautenberg**. The lightning fast pace with which EPA has moved under section 112 got us, I understand, four toxics regulated sometime before 1975, and since then, breathtakingly moving along, we have gotten another three done in the last 12 years.

Do you think section 112 is working well, Dr. Forney?

Dr. **Forney**. Again, I would repeat that.

Senator **Lautenberg**. You say it is being improved.

Dr. **Forney**. Section 112 was working very, very poorly through the 1970s and in the early years of this decade. We believe that, as we look at the record since the adoption in 1985 of the air toxic control strategy, that it is beginning to work and that the momentum is building.

Senator **Lautenberg**. Mr. Doniger?

Mr. **Doniger**. I would say the inertia is building, to continue the metaphor. I agree with your analysis that things seemed, if anything, to be slowing down. There is more activity now, but it seems to be more directed at deciding what not to do and what to do only at a snail's pace than actually to take pollution out of the air.

Comment was made earlier about how this is not a big health problem. I think that view is difficult to explain that to the people who live near these facilities and who are the most exposed.

Senator **Lautenberg**. The size of the risk that Dr. Forney identifies here, is there a dispute about that, the percentages? I guess if you get the percentage down small enough, it still leaves people's health being jeopardized and people are dying unnecessarily. You said there was a two-tenths of 1 percent chance? Do you want to repeat that?

Dr. **Forney**. Of the cancer cases in this country, other than the melanoma skin cancer risks.

Senator **Lautenberg**. Would you describe being selected by the "wheel of misfortune" or whatever it is, Mr. Doniger? What about that? Is that a di minimus risk and therefore, "What the devil, why bother?"

Mr. **Doniger**. I think definitely not. First of all, let's take it as though it were an accurate total picture. It still tells you that, from EPA data about just these few pollutants, there are 1,700 cases of cancer one could prevent each year if there were a way to curb those pollutants. There are ways to do that.

This is a problem, also, which unfortunately has been fully studied by any means. EPA will be the first to tell you that there are hundreds of compounds in the air, the quantitative work on which either has not been done or can't be done. So the risk has to be a lot greater than what they have been able to pin down with some numbers already.

Senator **Lautenberg**. One thousand seven hundred cases?

Dr. **Forney**. I haven't translated that percentage into numbers, but I would go on to state the second part of what I said, that not only is that degree of expected cancer cases from air pollution relatively low, very low——

Senator **Lautenberg**. I understand.

Dr. **Forney** [continuing]. As compared to other cancer cases, a relatively small percentage of it comes from this large stationary sources; that most of it comes from the woodburning stoves and the inhalation of vehicle emissions and so on.

Mr. **Doniger**. Those things are covered by this bill, too.

Senator **Lautenberg**. Indeed.

Mr. Maillet, you have responded to Dr. Forney's comments about the States doing the job that they had to do, and I think you properly said that you had to move in there absent any other control that would protect the citizens of your State and others.

Dr. Forney, don't you think we are better off with as much as possible a uniform standard throughout the country that defines these things?

Dr. **Forney**. Senator, as I responded when Mr. Maillet was talking and interrupted him, for which I apologize, we do agree that there should be uniform standards and that a difference in standards amongst the States is not a sensible thing to have; it is not economically efficient, amongst its other problems.

Senator **Lautenberg**. It also promotes a condition that few of us can encourage, and that is reduced environmental controls among States can often lead to dislocation of a business for all kinds of the wrong reasons.

Dr. **Forney**. I would submit that while that may have been true 20 or 30 years ago when I started work, that is no longer a factor. I see no selection of industrial locations in this country for environmental reasons.

Senator **Lautenberg**. I think a large part of that is because we are looking at these problems very carefully and we are saying, "Even if you do that, you are liable to find yourself regulated and prevented from polluting the air or the water or what-have-you," so it doesn't pay to think like that.

Dr. **Forney**. I agree with that.

Mr. **Maillet**. Senator, I think the consistency amongst the State programs and amongst local programs is very, very important. We hear that from our industry all the time. Massachusetts has been a progressive State in the air pollution area, and our industry feels sometimes that they are being picked on by the way that we regulate them, that other states and other areas of the country get away with a lot more. I think it is very important to have a consistent program.

Again, I will emphasize that the leadership that hasn't been there has been the void that we have tried to step into. In doing that, in trying to develop more than 50 separate programs, because there are legal programs in some of these states, we are looking at a 67-headed monster out there that is going in many different directions. We feel that the only way to handle that is with a bill such as this that would establish a national air toxics program for the country.

Senator **Lautenberg**. Thank you, Mr. Chairman.

Senator **Baucus**. Thank you, Senator. I notice that Senator Stafford has joined us, he is a strong advocate of enforcement of environmental laws.

Senator, do you have a statement?

Senator **Stafford**. I don't, Mr. Chairman. I appreciate your recognizing me, and I am here this morning to listen to witnesses and, I hope, learn.

Senator **Baucus**. Senator Chafee?

Senator **Chafee**. Thank you, Mr. Chairman.

The witnesses, Mr. Maillet and Mr. Forney, certainly seem to agree that we need a uniform standard so that we don't create State havens for companies in one State that would find the treatment more lenient than in another State. There is agreement there.

As I understand what you are saying, Dr. Forney, it is that we don't need Federal legislation here. Is it an unfair interpretation that the States can do and are doing an adequate job? Is that an unfair characterization of your testimony?

Dr. **Forney**. I guess a more accurate way of stating it is that we feel very heavily impacted by the State regulatory efforts at this time, perhaps greater, by and large, than by the Federal level.

Senator **Chafee**. But my worry is, and Mr. Maillet, maybe, could answer this, is whether the States have either the resources or the expertise to handle this.

Mr. **Maillet**. No, sir. We don't. The States are, I think, constrained with a number of different programs that we have to face with a fixed set of resources.

It is very difficult for us to look at the issues, identifying what is happening with all of the other states, and to come to a standard-setting conclusion. Massachusetts has cooperated with the other Northeast states in a group called NESCAUM, which Rhode Island is a part of, in picking and choosing pollutants to regulate. We have found this to be very expensive and very difficult to do.

Then we end up with a standard for the Northeast States that, perhaps, differs from the rest of the country. What appears to the world is: Which number is right? Is it the Northeast States' number that was designed to protect public health? Is it a number that another State developed based on a TLV divided by a safety factor? We find that a very difficult situation to face.

Senator **Chafee**. That gets to the first question, which is, then, Dr. Forney would agree, you ought to have a uniform standard. Then when you get a uniform standard, let's say EPA announces its uniform standard. The question is whether the individual States have got the expertise to monitor the problem.

Mr. **Maillet**. As far as dealing with the individual sources or even the area sources, I think that the States and the local agencies have expertise. We are looking at a regulatory program, one that would go to the source to install controls on the source, controls identified by EPA and processes identified by EPA and to implement those.

We have done that since 1970. We have come a long way in attainment of SO_2 standards and particulate standards. We are in pretty good shape. There are some areas that we are going to have to do more on with the fine particulate standard. Ozone is still a problem, but where the issue has been identified and the controls and the standards have been set, States and local agencies have moved to implement the controls on those facilities.

Dr. **Forney**. I would say that, by and large, we find a high level of expertise in the States where most of our plants are located.

Senator **Chafee**. One quick question. Is there any pooling of talent? What is your group named, Northeast——

Mr. MAILLET. NESCAUM is the Northeast States for Coordinated Air Use Management. I am here representing STAPPA, the State and Territorial Air Pollution Program Administrators.

Senator CHAFEE. Take the Northeast group. Do you folks pool your talent? Do you have somebody on a mutual payroll that can go to Rhode Island and New Hampshire and Connecticut and Massacusetts? Does each State sort of go its own way?

Mr. MAILLET. It is an affiliation of the State air programs, and it acts as a coordinator as opposed to a real doer. Each State must still adopt the programs and any recommendations that NESCAUM would make as individual States.

Senator CHAFEE. I was thinking more of the personnel.

Mr. MAILLET. There is only a coordination role. It is a very, very small staff that coordinates the States' activities and meetings.

Senator CHAFEE. Thank you.

Thank you, Mr. Chairman.

Senator BAUCUS. Thanks very much, Senator Chafee.

Do you have any other questions?

Senator DURENBERGER. I had a question or two.

Senator CHAFEE. Could I ask a quick question? What is your intention on the voting, Mr. Chairman?

Senator LAUTENBERG [presiding]. The presiding chairman left for the floor and expects to return quickly, which I hope will be the case. Otherwise, we will have an abandoned Committee here.

Senator DURENBERGER. Mr. Forney, let me pick up on your third objection, which is the definition of BACT is too tough or would result in overregulation.

Just for the record, let me say that the modifications to the definition of BACT that are included in my bill are modifications that this Committee adopted once before in 1984 in S. 768, which I referred to earlier.

We made the same changes in reference points for the Clean Air Act definition of BACT at that time, and the bill passed by an overwhelming margin. I did not include, to my knowledge, anything new in regard to the reference points for BACT determinations.

Let me ask you this question. We are dealing here with major sources of toxic air pollutants. We are not just talking about air pollutants; we are talking about toxic air pollutants. The facilities involved put out 10 tons per year or more of pollutants already listed by the Congress as areas of concern.

My question of you is: What standard of control do you think would be appropriate for air toxics like these if it is not a standard which is the best standard of control that has been demonstrated in practice already?

Dr. FORNEY. First of all, let me repeat my statement that we have got to make sure that we don't confuse means and ends here. The end is to protect the public health. The means is, perhaps, to control the toxic air pollutants or whatever else is imperiling public health.

It is our belief that, again, the EPA studies show that a relatively small portion of the cancers in this country that imperil public health, if you will, that are as a result of air pollution of any kind and that a relatively small proportion of them are due to stationary source air pollutants, perhaps as low as zero, but I wouldn't claim that, all I would claim is that the numbers tend to suggest it is a very low proportion of the cancers in this country.

Having said that, I would say that with the implementation, and what is going on in the States, if we can get EPA to provide a more uniform source of technological information on standards—that does not require legislation; regulation alone can do that—that we can proceed with existing law, at least until we get additional information from SARA title III that will tell us what, if anything, remains to be done.

Senator **Durenberger**. I have to get through a couple other definitional questions. The fourth is the argument that we are mixing apples and oranges when we regulate routine releases in the same legislation designed to prevent accidental releases.

I don't have any problem with the premise of your comments. The two should be kept separate. There are separate lists, separate regulatory authorities and distinctions, and there are different elements in the programs. What I can't quite understand, and maybe you can help me understand it, is the nature of your objection.

Would it be better for us to separate these two concerns into different sections of the Act or give them different titles? Is it the need for sort of separate definitions in the Act that impairs this particular legislation, in your opinion? What precisely is the nature of the objection?

Dr. **Forney**. I will start with the view, as I expressed in my testimony, that we don't need legislation on either score at this time, because we are making, under SARA title III and under section 112 and the other provisions of the Clean Air Act, we are making satisfactory progress.

But to the extent that anyone deems that additional legislation is required, we must treat these things as completely separate problems because they are very, very different problems to deal with.

In one case, in our chemical plants, we are desperately anxious that nothing be released accidentally from those sources at any time. The thing that we work on there is minimizing the inventory, the tightest possible tanks, the best possible vent systems and so on. That is what we worked on.

Then with respect to the emissions that are taking place all the time, which we believe pose no threat to public health at their present level, what we have got to do is measure them; know how much is going out all the time; make sure there are no upsets in the system; that there are no new materials unintentionally put into the system, and reduce them just on general principles, economic principles, if nothing else.

So it is an entirely different problem we need to address.

Senator **Durenberger** [presiding]. Mr. Doniger?

Mr. **Doniger**. I think Mr. Forney described just how your bill would work, in that it provides appropriately for a process targeted at the routine emissions and a process targeted at the accidental emissions.

Senator **Durenberger**. My conclusion—and maybe we ought to get me off of this—is he just doesn't want to see this in the Clean Air Act. I don't know that there is that much disagreement on what we ought to be doing. What I hear him saying is, "Don't put it in the Clean Air Act.'

Mr. **Forney**. What I say is we have already got it in SARA title III. We are accumulating a lot of information on the subject, and that information will tell us whether or not anything needs to be done in the Clean Air Act or any other act.

Senator **Durenberger**. Mr. Maillet?

Mr. **Maillet**. Senator, I think we have been faced with a lot of toxic issues for a long time. We see a real need to get going in this direction.

I would also point out that we, as a nation and as a society, are going to continue to grow. I mean, there are more automobiles; there is more everything. This is happening all the time. It is nice to say that we can maintain things the way they are, but growth is just going to increase all of the pollution, all of the emissions, that are going into the air.

I think it is time that we took the stand that says that we have a finite resource in air quality and that we have to defend that resource against its misuse. The application of BACT, Best Available Control Technology, I think, is a step in that direction. BACT is not a static issue; it is something that we know what the controls will be this year and next year, and it will be better in five years, or some point down the road. So we can improve the situation.

A few years ago we couldn't measure dioxins. We are now looking in Massachusetts at a guideline that is one picogram per cubic meter. We treat that as an air toxic.

That level is as small, one trillionth of a gram, as the national debt is large on the other end of the spectrum, a very tiny amount. As we go into the future, we are going to be able to measure pollutants at a much lower level. I think this bill can deal with that kind of a situation as we go forward into the future. The fact is, all of this material is not going to be static. We are going to be measuring things in the future we haven't measured in the past, and we are going to be measuring things at much, much lower levels.

Senator **Durenberger**. Gentlemen, we are going to have to recess this panel so I can go and vote. The chairman will be back soon.

[Short recess.]

Senator **Baucus**. The hearing will come back to order. I think we have already commenced with the questioning of this last panel. We will move to the next panel.

Mr. **Maillet**. Thank you, sir.

Senator **Baucus**. We move now to panel number 2: Ms. Teresa Keaveny from the Western Organization of Resources Council; Mr. Darryl Malek-Wiley with the Sierra Club; Mr. Ernie Witt, the Clean Water Action Project, Richmond, California; and Ms. Elsa Bynoe-Andriolo, Chairman of the Jersey City Environmental Committee from Jersey City, New Jersey.

Again, we will start first with Ms. Keaveny.

STATEMENT OF THERESA KEAVENY, STAFF, WESTERN ORGANIZATION OF RESOURCE COUNCILS

Senator **Baucus**. Is that the correct pronunciation?

Ms. **Keaveny**. Keaveny.

Senator BAUCUS. Keaveny. Would you please bring the microphone very close to you, Ms. Keaveny? Unfortunately, in this hearing room, the microphones have to be pretty close.

Ms. KEAVENY. Thank you. Good morning, Mr. Chairman, and members of the Committee. My name is Theresa Keaveny, and I am here this morning on behalf of the Dakota Resource Council. I am a staff person with the Western Organization of Resource Councils, of which the Dakota Resource Council is a member group.

The Dakota Resource Council is a grass roots membership organization of North Dakota farmers, ranchers, small business and other people dedicated to the preservation of the rural community and its agricultural economy. DRC is especially dedicated to protect the food-producing resources of the state, including its people, from unsound energy and agricultural policy.

My testimony today will discuss the serious impacts associated with energy development, especially hydrogen sulfide, in North Dakota. We support the regulation of H_2S as a toxic under the Clean Air Act.

Crude oil was first drilled in 1951 in the vast Williston Basin reserve located in western North Dakota and eastern Montana. Within this oil and gas reserve lies identified locations of H_2S in concentrations from less than 1 percent to as high as 50 percent. H_2S is colorless and heavier than air, which causes it to Settle in low-lying areas.

H_2S, also known as "sour gas" due to its obnoxious rotten egg odor, is highly toxic. Because industry often considers H_2S an unusable oilfield byproduct, it is flared. In some locations, H_2S is vented directly into the air. Incomplete combustion also releases the toxic gas directly into the atmosphere. It only takes one-tenth of one percent to kill people and livestock. People and livestock have died from exposure to H_2S.

In North Dakota, the most well-documented and publicized instances included two separate episodes in 1983 in which three oilfield workers were killed and one episode in 1986 in which 16 cattle were killed.

The damage to human and animal health, as well as farm equipment and personal property, is also well documented. Health effects include headaches and stomach aches, nausea, nosebleeds and unconsciousness.

Because H_2S is highly corrosive, it eats through barbwire fenses and metal buildings, as well as farm and oilfield storage tanks, piping and other equipment.

North Dakota remains the most agriculturally dependent of all the states in the country, with 94 percent of its acreage still dedicated to agriculture. Research is currently being conducted on the effects of H_2S on alfalfa and other plant life found in and around the Theodore Roosevelt National Park, and that research is conducted by Dr. David E. Bilderback at the University of Montana at Missoula. Preliminary results of Dr. Bilderback's study does indicate that vegetation in the oilfields under investigation have been impacted.

Two state agencies regulate air pollution from the oil and gas industry in North Dakota. The North Dakota Industrial Commission, which is comprised of the Governor, the Attorney General and the

Ag commissioner, has primary jurisdiction over the industry as a whole and the State Department of Health can draft and enforce regulations to prevent air and water pollution.

The Dakota Resource Council has attempted, somewhat successfully, to lessen the threat from H_2S through the process of drafting and passing of the state legislation and agency rules and regulations. One such attempt was the passage of the "flaring law" in North Dakota's 1985 legislative session. This law requires that individual gas flares must be tied in to gas gathering lines within a one-year period of drilling. Violators would be required to pay royalties and a gross production tax on the gas flared.

The State law was amended to allow the State Industrial Commission to grant exemptions if economic infeasibility was proved. In 1986, the Industrial Commission was flooded with exemption requests, many of which we feel did not show economic hardship. The Industrial Commission granted exemptions for the vast majority of applicants.

Not only is it nearly impossible to get adequate protection through agency rules and regulations, but enforcement of the rules we do have is poor. This sentiment has been expressed not only by DRC members, but by lawyers and State agency and industrial safety personnel, as well.

After many years and attempts to protect North Dakota citizens, animal and plant life from these serious threats from H_2S, DRC has come to the conclusion that this toxic can only be adequately controlled by Federal legislation, specifically, the Clean Air Act. We can provide more documentation on these problems and look forward to working with this Committee over the next months to ensure that H_2S is regulated.

DRC works in coalition with a number of groups involved with air quality protection in North Dakota. This coalition effort includes the American Lung Association of North Dakota and the North Dakota chapters of the League of Women Voters, Audubon Society and the Sierra Club. We are also a member of the Western Organization of Resource Councils. We combine our efforts with our other member groups: The Northern Plains Resource Council; the Powder River Basin Resource Council; and the Western Colorado Congress, to correct the many unsound energy development and agricultural policies facing the Great Plains.

At this time, I would also like to submit into the hearing record further documentation of the toxic air pollution problems specific to North Dakota and energy development in the Great Plains region as a whole. This comes from the Audubon Society and Sierra Club chapters in North Dakota.

We thank you for allowing us to testify, and we appreciate your attention to the toxic air pollution concerns.

Senator BAUCUS. Thank you, Ms. Keaveny.

Senator BAUCUS. Mr. Malek-Wiley?

STATEMENT OF DARRYL MALEK-WILEY, SIERRA CLUB, NEW ORLEANS, LA

Mr. MALEK-WILEY. Mr. Chairman, members of the committee, I want to thank you very much for allowing me to be here today to testify in support of the air toxics bill, S. 1384.

My name is Darryl Malek-Wiley. I am the chair of the Delta Chapter of the Sierra Club, which covers the whole State of Louisiana.

Louisiana desperately needs strong federal action to control emission of air toxics. The State of Louisiana has 147 chemical plants, which amount to 25 percent of the United States' production of chemicals. These plants have been built mostly after the Second World War, and some of these are among the largest in the Nation.

The idea that there might be a problem with airborne toxics around chemical plants was first documented by a 1979 EPA report of the Baton Rouge-Giesmar area which identified the presence of several carcinogens in the ambient air around these communities. Known carcinogens included vinyl chloride, carbon tetracloride, benzene and trichloroethylene. Suspected carcinogens detected were: chloroform, tetrachloroethylene, 1,1-2 trichloroethane; 1,1-2 trichloroethylene and vinylidene chloride.

Eugene Sawicki, an EPA chemist, stated in regard to this report, and I quote,

> You almost don't need test animals, in a way. We have plenty of people breathing in these chemicals in the Baton Rouge area. All we have to do is keep an eye on them and keep good statistics. It is human experimentation going on, and all we can do right now is collect statistics from our human guinea pigs, so to speak, then wait and see.

We in Louisiana are tired of playing the guinea pigs for the rest of the Nation. I am sad to say that Louisiana has been very lousy in keeping statistics. We need to stop the experiment on people in Louisiana.

In October of 1986, the Delta Chapter researched for the first time the amount of permitted air releases in the Geismar-St. Gabriel area, which contains 18 chemical plants. The State Department of Environmental Quality had never added up the numbers.

What we found was shocking. These plants were permitted to release 196,649,274 pounds of pollutants each year. Of this total, 24 percent, or 82,635,743 pounds, were carcinogenic or bacterial mutagens.

We are now currently compiling data for the area of study just across the Mississippi River from the first study area. We have looked at eight plants and found that the total permitted discharges total 184,606,000 pounds. Of this total, 13.5 percent, or 13,666,000 pounds, are carcinogens.

So we end up with a total routine discharge each year of air carcinogens that have been reported in this 20-square mile area of 96,291,743 pounds. That is a 20-mile area. Ninety-six million pounds a year are discharged in that area.

As I stated, we are only looking at 23 of the chemical plants in Louisiana. There are 147 plants in the State. Therefore, the amount of air toxics permitted for annual discharge from all these plants may reach millions of pounds. Unfortunately, we cannot, in the permitted releases, properly record or know the amount of emission from spills and non-routine accidents at these plants. All of these air toxic discharges have an effect on the local community.

I have attached to my testimony the statements of two residents of the area and their comments on health problems which they are seeing.

In addition, a local pharmacist has noted an abnormally high rate of stillbirths and miscarriages among women living in St. Gabriel. His chart shows 15 women of childbearing age experienced a total of 16 miscarriages and stillbirths with only one live birth recorded over a three-year period.

Finally, we in Louisiana must live with the fact that we have the highest death rate from cancer in the United States, and just for living in Louisiana, we have a two and a half year less life expectancy than the rest of the Nation.

With all these facts and data, one might ask why Louisiana has not enacted its own air toxics laws. The answer is, quite frankly, that Louisiana is unwilling to place its industry at a competitive disadvantage by regulating air toxics beyond those specified in Section 112 of the Clean Air Act. Therefore, strong Federal standards are needed to ensure all industries will reduce these emissions in similar fashions.

I will skip some of my testimony and conclude here. We strongly support S. 1384, and we have got some specific comments on timing, but I want to skip down to sort of end on something that brings home the point of how bad the problem is.

I was talking with Mr. Amos Favorite. Mr. Favorite is a gentleman residing in Giesmar. He is 65. He went and bought some aluminum screens for his windows and the salesman said, "These would be good for 10 to 15 years. You don't need to worry." Maybe here in Washington, D.C. they would be good for 10 to 15 years, but not in Giesmar, Louisiana. The screens lasted there for 6 months. They were dust. The chemicals in the air are so powerful and plentiful that in 6 months his screens were dust.

I ask you Senators: If the chemicals in the air can destroy aluminum screens in 6 months, what do you think it is going to do to his lungs and his health? I thank you very much for your time, and please stop the air toxics experiment on the human beings in the State of Louisiana. Thank you.

Senator BAUCUS. Thank you very much, Mr. Malek-Wiley.

We will next hear from Mr. Henry Clark. I mistakenly said Mr. Ernie Witt, but I understand Mr. Clark is replacing Mr. Witt.

STATEMENT OF HENRY CLARK, CLEAN WATER ACTION PROJECT, RICHMOND, CA

Mr. CLARK. That is correct. Thank you. My name is Henry Clark, and I would like to thank the Chairman and the Committee for giving me this opportunity to testify. I represent a delegation from the West County Toxics Coalition of Richmond, California.

I have lived and worked in Richmond all my life. The fence in my back yard is Chevron oil refinery's property line. We have had the feeling for a long time that the toxic fumes from Chevron and other industries in the area have been making us sick.

Most of the families in our community have been hit by upper respiratory and cancer problems. Many mornings I have woken up to see the leaves on the trees and my flower brown from the air pollution. At night, we have to stay inside because our eyes burn and our skin burns and it hurts to breathe.

Even our children are being affected. The doctors who work with children in our neighborhood have statistics showing our children under 5 have a high rate of cancer and leukemia.

In the past few years, we have learned from government sources and scientific studies that our worst fears are probably true: The Chevron oil refinery releases about five tons per year of benzene, a chemical known to cause cancer.

In addition, the refinery emits dozens of tons of other toxic air contaminants. Many are known or suspected carcinogens. For example, formaldehyde, chloroform and tetrachloroethylene.

We are not just worried about cancer. More than eight tons of xylene is emitted from the complex every year, and this chemical may cause fetal and reproductive damage. Benzene levels near the plant may be high enough to cause blood damage and fetal toxicity.

Other pollutants, such as sulfate, can cause respiratory illness, something we see a lot of. Chevron's Ortho pesticide plant emits 1.4 tons of methylenechloride, which probably produces cancer. The Ortho plant also has the hazardous waste incinerator, which has yet to receive a final hazardous waste permit, and has never been tested for dioxins. All of the plant's emissions, whether they are routine or result from accidental spills, occur very close to densely populated neighborhoods which surround the plant.

Thousands of people living around the facility have been breathing this air day-in and day-out for years. We consulted with a professional meteriologist. He told us that the wind would carry toxic air pollutants from Chevron to highly polluted neighborhoods more than 60 percent of the time, and Chevron is not the only source of emissions we have to worry about.

In 1977, the county was identified as one of 39 petrochemical counties in the nation with elevated cancer rates for lung and respiratory tracts. A series of detailed health studies have shown that cancers were not evenly spread throughout our county. The really high rates were found in areas where the exposure to refinery and chemical plant emissions are high. This is where we live.

If all of this isn't bad enough, we find out that we are supposed to get a new mass burn incinerator for solid wastes. We are tired of the studies. We want action. We have organized our community. We have held demonstrations. Together, with experts from the National Campaign against Toxic Hazards, we conducted a neighborhood inspection of the Chevron complex.

We have made a number of demands directly to the company. We want them to fund air toxic monitors in our neighborhoods. There are none now. We want them to implement a comprehensive waste reduction plan to prevent the generation of air toxics.

For example, we have asked the company to install a vapor recovery process at Chevron's marine loading system, a measure that would reduce benzene emissions from the refinery and to accelerate the replacement of seals in large gasoline tanks.

Together, these moves could cut benzene emissions from the complex in half. We are here because we believe the Congress has to do more to protect us from air toxics. The current system is not working. We are amazed to hear that most toxic air emissions are even regulated.

We appreciate that the Committee has introduced a bill that would require stiff standards for the most hazardous air pollutants, ones like benzenes, and petrochlorides that are emitted in our neighborhoods.

We know that even the lowest levels of these chemicals can cause cancer, and we don't want any levels of these chemicals in our air. But we are concerned that other toxic chemicals not listed won't be addressed seriously by EPA.

We are opposed to closing down plants and eliminating jobs, but we think that the companies should be made to prevent emissions of dangerous chemicals to the very lowest levels possible. Even if they have to change the way they make their products or modernize their facilities, they should be required to have a comprehensive waste reduction plan that proves that the pollutors are doing something possible, everything possible. We don't want the law to let companies get off the hook for years and years. They have been doing that for decades already.

We would like to thank Senator Durenberger for bringing this matter to the public attention and for his efforts to look for a solution to this life-and-death issue. Thank you.

Senator **Baucus**. Thank you very much, Mr. Clark.

Next, Ms. Elsa Bynoe-Andriolo.

STATEMENT OF ESLA BYNOE-ANDIOLO, ON BEHALF OF THE NEW JERSEY ENVIRONMENTAL FEDERATION

Ms. **Bynoe-Andriolo**. Mr. Chairman, and members of the Committee, my name is Elsa Bynoe-Andriolo. I am here today representing the New Jersey Environmental Federation, a grass roots coalition of 30 community, environmental and labor groups representing well over 100,000 New Jerseyites.

The Federation has a diverse membership, including the Cape May Courthouse Neighborhood Association; the Jersey Shore Chapter of the National Audubon Society; and the United Auto Workers, to name a few.

In addition, the Federation has more than 10,000 individual members. I am also the chairperson of the Jersey City Environmental Commission, which is currently engaged in a massive fight to clean up enormous quantities of chromium wastes dumped by careless corporations at many locations throughout the city.

In addition, I am the chairperson of the PJP Landfill Task Force, which led the fight to extinguish a fire at this landfill which had been burning for more than 20 years and spewing toxic fumes into a community.

Living near this Superfund toxic waste site taught me how important it is for citizens to get together and take action on toxic pollution problems affecting our communities. I also learned that citizens cannot do the job alone. We need strong laws at the national level, and we need our public officials to make sure that the laws are aggressively enforced.

I was very active in the battle to strengthen the Superfund. I would like to take this opportunity to commend the Senate Environment and Public Works Committee for the work you did to make sure that we have a strong toxic waste clean-up program. In particular, I would like to commend our Senator from New Jersey, Frank Lautenberg, for his outstanding leadership in the fight for a strong Superfund.

Time and time again, when the chips were down and the bill was stalled, Senator Lautenberg stood up for the citizens of New Jersey and the country to keep the momentum going for this important legislation, all in the face of massive opposition from the powerful polluters, the Reagan Administration, and others who sought to weaken the bill.

Now we face a similar battle: The fight against toxic air pollution, the fight for clean air. New Jersey certainly has its share of air pollution problems. Millions of pounds of toxic chemicals discharged into the air each year can cause cancer, birth defects and other diseases.

A 1983 study conducted by the State revealed that 22 chemicals known or suspected of causing cancer are common components of New Jersey's urban air. Most of these toxic air emissions go unregulated.

New Jersey has experienced more than 150 chemical accidents in the past five years. These accidents, of course, have caused deaths, injuries, hospitalizations, massive evacuations, fish kills and economic damages. So-called accidental releases of toxic air pollutants appear to be more the norm than the exception.

The New York metropolitan area, which includes Jersey City and other New Jersey communities, exceeds the ozone standard an average of 31 days a year.

Jersey City, Newark, Trenton, Atlantic City and the Bergen/Passaic area all violate health standards for either ozone or carbon monoxide. Clearly, there is a need to take action to clean up the massive amounts of toxic pollution discharged into the air each day.

The Senate Environment and Public Works Committee has the opportunity to stop this onslaught of toxics into the air we breath. The Environmental Federation commends the Committee for addressing the important problems of air toxics.

We feel the bill should include the following: We would like to see an end to the release of all cancer-causing chemicals into the air. We know there are no safe levels for these chemicals. We don't want to see any plants closed, but the industries must show that they are doing everything possible to prevent the release of these carcinogens, even if it means modernizing equipment and changing processes.

If the company can show that it can't afford to do this, there should be financial assistance available from the government. We should make sure that industries employ toxic use reduction and waste reduction approaches to reduce the discharge of toxics into the air without increasing the discharge of toxics to the land or water.

We must make sure the facilities with air permits are inspected regularly. But this will take full funding for EPA and State agencies. We need strong enforcement with large fines and jail sentences for executives and firms that are repeat violators. The punishment must fit the crime.

Finally, we are alarmed at the number of proposals for garbage incinerators in New Jersey: One for each county. Our air is already polluted and unhealthy. We need to clean the air, not add more lead, dioxins and other dangerous emissions. We know that there are better ways to manage our garbage. Burning and landfills should the choices of last resort after waste reduction and recycling are used to the maximum extent possible.

We hope you will introduce a bill that will not only require standards and permits for incinerators, but that we mandate reduction and recycling as the preferred option. I thank you for this opportunity to testify today. Thank you.

Senator **Baucus**. Thank you very much, Ms. Bynoe-Andriolo.

We will begin the questioning with Senator Durenberger.

Senator **Durenberger**. Mr. Chairman and members of the panel, I just thank you very much, not only for your testimony, but for the commitment that has gone into an awful lot of work and effort on your part before you ever made yourself available to this Committee.

I guess I would just like to ask you one question. I think all of you were here earlier and listened to the first panel. We had some very divergent opinions. It was sort of like Barbara Walters talking to Donna Rice——

But I was wondering——

Senator **Baucus**. Can you explain that, Senator?

Senator **Durenberger**. I am going to.

Senator **Chafee**. The analogy missed me.

Senator **Durenberger**. This is one of those, "How did you feel?" questions.

You have listened, as many people have over the years, to testimony in this committee, and it is very difficult to sit here from time to time and see the wide divergence of opinions.

But when you hear somebody say, "Well, we don't need this kind of legislation; the Federal Government doesn't need to act, because there is a lot of activity in the last couple of years at the Environmental Protection Agency," and then some Senators sit up here and say, "Yes, we recognize the fact that in the last couple of years, there has been some activity, but we also lived through the previous years, and as we all know, the law only goes so far."

It is the people that are involved, and if they choose not to adhere to the law or if they find reasons that the law is defective in this respect or that respect, they would seem to tend to ignore it. I was upset by the fact that one of the witnesses said, "Well, the State and local government is doing a fine job at this sort of thing, so we don't need to have anything happen," and the person from State and local governments said, "Well, the only reason we are doing anything is because the Federal Government hasn't acted in certain of these areas."

I am just curious to know how you feel, as people who are deeply involved in this process, when you hear that kind of divergent testimony.

Mr. Malek-Wiley. Speaking for the State of Louisiana, our State agencies aren't doing anything. They are permitting all these discharges. The chemical industry doesn't want the data out. I sit on the SARA Commission, the State Commission under title III on the community right-to-know.

They are doing everything possible to hide data. They don't want the citizens to know what is happening. They are aggregating numbers, which is completely useless when you try to find out what chemical compounds are being omitted.

I think that the gentleman hasn't been to Louisiana and talked to his chemical plants, because they have a terrible maintenance record; everything is just very bad.

Ms. Keaveny. In North Dakota, we think that we have ultimately exhausted our efforts to ensure that there is adequate state legislation and regulation for H_2S in the oilfields, and that is why we are here.

Additionally, we see competition in the oil industry or, I should say, we hear the oil industry saying, "If you regulate us in North Dakota, we will move elsewhere."

We heard that on taxation issues and we hear it on environmental issues, as well. Lacking any kind of national stringent standard dealing with H_2S, it will allow industry to continue to play one State off of the other States.

"We will go to Montana; we will go to Wyoming; we will go to other States if you continue to put environmental restrictions on us."

So we believe strongly that, insofar as H_2S is concerned, a strong national standard to regulate H_2S is warranted.

Ms. Bynoe-Andriolo. I would like to say that I think in the State of New Jersey, we are rather fortunate in that public officials really are zealous about clean air and clean water, perhaps because we are one of the most polluted states. Therefore, having such public officials, our agencies tend to be a little more involved.

But I wonder why these gentlemen say that there is enough being done. I tend to think that they wear masks, something that prevents them and their families from breathing the air that we ordinary people breathe, because there is no separation of air, and I feel very sad when I hear the statement.

Mr. Durenberger, I agree with you 100 percent in that these statements should not be tolerated. We do need to have clean air, and the Federal government is the one to do it.

Senator Baucus. Mr. Clark?

Mr. Clark. Senator, I think that the Federal government should take the lead in this type of legislation. I know that on the local level in my area, in Richmond, Chevron, which is one of the major refineries that we are dealing with there that is polluting our air, is the largest taxpayer in the City of Richmond and is known to have a considerable amount of influence in that city.

It is apparent that the local level is doing relatively nothing in controlling the pollution problem. If that was the case, then we wouldn't be daily and nightly exposed to the problems that we have been addressed to our health.

I think that the efforts that you are conducting on the Federal level are definitely welcome. I must say that I have to leave. I have a plane that I have to go and catch. Thank you.

Senator **Baucus**. Thank you very much, Senator.

Thank you, Mr. Clark.

I would like to ask the panel a question. Before I do, I wish to inform everyone that this Committee asked the Environmental Protection Agency to testify, and the EPA declined. It is regrettable that the EPA declined, because I think that first, this Committee could have exercised its oversight responsibilities much better if we had the opportunity to ask questions of EPA on this subject.

Senator **Chafee**. Mr. Chairman, I would like to correct that, if I might.

Senator **Baucus**. Go ahead.

Senator **Stafford**. I was going to say that I don't know the circumstances, but if EPA declined to appear on the ground that they don't appear before Subcommittees, it would be easy enough to arrange for a Full Committee hearing so they could not have that reason not to come.

Senator **Chafee**. Also, I would like to make a correction, if I might, Mr. Chairman. There was a problem, as you know. Senator Mitchell, the Chairman of this Subcommittee, is tied up next week, and because of his very heavy schedule, being on that Select Committee, there was a difficulty.

Mr. Thomas very much wanted to come next week. He could not come this week. Indeed, he sought to testify before this Subcommittee on this matter. The difficulty has been working out the schedules of he and Senator Mitchell. But I think it would be giving the wrong impression to suggest that EPA did not wish to testify.

Senator **Baucus**. I stand corrected. It was my understanding that EPA was asked to testify and did not want to testify.

Senator **Chafee**. I am not contradicting you, Mr. Chairman, that an invitation was given to EPA.

Mr. Thomas himself wished to testify. This week, he could not do it because of a variety of reasons. Indeed, he has asked me to, and I have talked with Senator Mitchell on this, to arrange, if he could, to testify next week, but again, as I mentioned, Senator Mitchell has these problems because of the conflict with that other Select Committee.

Senator **Baucus**. The main point is: It is important for us to find someone responsible in EPA to testify. I hoped that it could be Mr. Thomas, but if Mr. Thomas himself is unavailable due to scheduling conflicts, it seems to me that we should try to find an appropriate official in EPA to respond.

Senator **Chafee**. All I wanted to do, Mr. Chairman, is correct any impression that EPA does not choose to testify on that matter. That would be incorrect.

Senator **Durenberger**. I think, Mr. Chairman, as I understand the facts, I understand this only because as the chief author of the legislation, I wanted to see somebody, as you did, appear to testify. We asked the Environmental Protection Agency to send two very specific expert witnesses to this hearing to add to the expert base.

I think because the Administrator himself wanted to be the person to testify, at least we will assume that was the rationale, that they refused to permit these two witnesses to come to this hearing. So in part, the Administrator is at fault in not letting the two witnesses come, but in part, perhaps he felt that he could better serve the cause by appearing in person.

Senator BAUCUS. I appreciate it.

Senator CHAFEE. He has a definite interest in this and personally wanted to appear because of his keen interest in this and doing what he could to give his views on this subject.

Senator BAUCUS. Anyway, the EPA is not here.

I would like the panelists to tell this Committee the degree to which they have run into road blocks in attempting to have either the EPA, the Federal Government or relevant State agencies address some of the problems that are occurring in your States.

Ms. Keaveny, the question that comes to my mind to you is: Why isn't H_2S listed anywhere as a toxic pollutant? I am wondering the degree to which you or others which you are associated with have attempted to ask that question yourself of EPA in a further attempt to try to get H_2S on one of the lists.

I would just like to ask the same kind of question, generally, of each of the other two witnesses.

Ms. KEAVENY. I guess I can't speak relative to our attempts with EPA to add H_2S to the list of toxics. Be have dealt with EPA relative to the pollution coming from the Great Plains gasification plant, which is the Nation's first synfuels plant in Beulah, North Dakota. That deals with accidents of sulphur dioxide emissions.

I think it is because of our difficulty in dealing with that issue that we did not pursue requests directly to EPA asking them to regulate and develop standards for H_2S.

At the state level, our members have filed numerous complaints with the State Health Department and with the Industrial Commission; have attended numerous hearings for the permitting of oil and gas wells at the level of the Industrial Commission; have coordinated hearings in the field for State legislative committees dealing with oil and gas development problems. So we have made a lot of attempts at the State level to get the information before State people on H_2S.

I don't know if that answers your question or not.

Senator BAUCUS. Thank you.

Mr. MALEK-WILEY. We have had a lot of problems with the State agency just getting the information out of them. To get our reports where we got the poundage, we had to go dig through tons and reams of paper to even get the numbers. You would think that the agency who is in charge of permitting air emissions would have that readily available so they could make informed decisions on the permits they give to plants next door to each other, but that is not the case. Instead, they approach each plant as if it operates in a vacuum. They don't look at the total emissions from plants beside each other.

So we added up the numbers. The State had never done that. It is because of the power of the oil and chemical lobby in Louisiana.

Senator **Baucus**. Have you or your organization attempted to get some of the relevant toxic pollutants listed with the Environmental Protection Agency in the section 112 process?

Mr. **Malek-Wiley**. No, we haven't tried to work with that process yet.

Senator **Baucus**. Ms. Bynoe-Andriolo?

Ms. **Bynoe-Andriolo**. No, I don't think I have any facts to comment on your question, sir.

Senator **Baucus**. Thank you.

Senator Stafford?

Senator **Stafford**. Thank you very much, Mr. Chairman. First, I want to say that I am not really surprised at what the witnesses have been telling us today in connection with their areas of this country about toxics in this air. I think this Committee has tried and is trying to legislate and do something about that as far as we can do with laws.

It takes a Federal agency and the State agencies acting, based on their laws and our laws, to actually make progress in cleaning up the atmosphere.

I congratulate Senator Baucus as chairman of this Subcommittee in holding the hearings and Senator Durenberger in his role in these hearings, and I am always glad to be on the same side with Senator John Chafee in any matters that involve the environment.

I did have just one or two brief questions. Mr. Wiley, in connection with your testimony, you referred to the 15 women who had had a very poor experience in childbirth. I have to ask you, was that a selected 15 women from a larger group, or how did the 15 women come to be selected?

Mr. **Malek-Wiley**. The community of St. Gabriel has a 2,000 population. These women were identified simply by word of mouth in the community. We have requested the State agency to come in and do a study. They haven't done anything yet. We have requested EPA to do a study. They haven't done anything. We have requested help.

We thought this situation was alarming in itself and we wanted some kind of qualitative study done to bring out what is happening there.

Senator **Stafford**. That would have been a devastating statistic if that were scientifically selected just as all of the women in that area who had experienced childbirth over a period of time.

Mr. **Malek-Wiley**. Yes.

Senator **Stafford**. If it could be further refined and in numbers against the population of women who were bearing children at the same time, I think it would be worthwhile for this Committee to have that.

Mr. **Malek-Wiley**. Yes, sir. We are working on that now. The State Department of Health has recently assigned somebody to look into this, because of the pressure we have been putting onto them. Hopefully, within a short amount of time, we will be able to come back with the definite numbers.

Senator **Stafford**. I had hoped to ask Mr. Clark about the question of whether he grew up in the area adjacent to Chevron or not and whether the housing in that area was built after the Chevron plants hand gone into production or whether the housing was there first and the Chevron plant came later. He had to leave to catch an airplane, something that members of the Senate understand.

So I will close with the observation, Mr. Malek-Wiley, that, having listened to the woes in your part of New Orleans, that if the Nation's industries that involve petrochemicals and the burning of high sulphur coal and so on continue at our present pace, it may bring the suffering of Louisiana and the industry there to an end by simply overheating the globe, melting the ice caps and putting Louisiana underwater.

That is not a very satisfactory way of ending it, but it is a way that is somewhat likely to happen if we don't change our course in this country and around the globe.

Thank you, Mr. Chairman.

Senator BAUCUS. Thank you, Senator Stafford.

Mr. Malek-Wiley, if you get that material together in a couple of weeks' time, we will keep the hearing record open.

Mr. MALEK-WILEY. Okay.

Senator BAUCUS. Senator Chafee?

Senator CHAFEE. Thank you, Mr. Chairman. I also wanted to first thank you all for coming. I have read the testimony that you each gave.

I would like to turn to Mr. Wiley. On page 3 of your testimony, the information that Senator Stafford was referring to, namely, the 15 women of childbearing age experienced a total of 16 miscarriages, that, as you point out, is anecdotal evidence, and I would like to reinforce the suggestion Senator Stafford and the Chairman made that you give us some definite information.

If I understood the prior panel, at least Mr. Forney, he indicated, did he not, Mr. Chairman, that cancer coming from these emissions amounted to something like two-tenths of 1 percent?

Senator BAUCUS. 0.2 percent.

Senator CHAFEE. That was it?

Senator BAUCUS. That is right.

Senator CHAFEE. Two-tenths of one percent of the cancer cases. I think he is quite right to say that that is really statistically unmeasureable. I find this difficult. Mr. Chairman, is there no one who has some statistical evidence on these emissions that we could refer to?

Where did you get your statistics, Mr. Wiley, that Louisiana has the highest death rate of cancer in the United States?

Mr. MALEK-WILEY. That is the National Cancer Institute.

Senator CHAFEE. That is a reported fact?

Mr. MALEK-WILEY. Right, and in Louisiana we are doubly blessed. We have got toxics in the air, and we have got toxics in the many discharges that come down the Mississippi River.

Senator CHAFEE. With these high cancer deaths in Louisiana, would they be in the Baton Rouge or the St. Gabriel area that you mentioned?

Mr. MALEK-WILEY. Yes. The high cancer rates run in the corridor from Baton Rouge down through the Mississippi River. It is referred to as "cancer island." There is an area in Lake Charles that is a high chemical production area that is also high in cancer rates, also.

I didn't bring it, but I can submit to you the maps with the cancer death rates at a later date.

Senator CHAFEE. Those have been based on compiled statistics?

Mr. MALEK-WILEY. Yes. Yes, sir.

Senator CHAFEE. I think those would be helpful to us, because, as I said, the only data we have so far is what Mr. Forney has given.

Thank you.

Thank you, Mr. Chairman.

Senator BAUCUS. No more questions?

Senator CHAFEE. No.

Senator BAUCUS. Thank you all very much. We appreciate your taking the time to give us your views.

Senator BAUCUS. The final panel is Dr. Fred Millar, the Nuclear and Hazardous Materials Transportation Project Director, and Dr. Bernard Goldstein of the Robert Wood Johnson Medical School from Piscataway, New Jersey.

STATEMENT OF DR. FRED MILLAR, DIRECTOR, TOXIC CHEMICAL AND HEALTH PROJECT, ENVIRONMENTAL POLICY INSTITUTE

Senator BAUCUS. Dr. Millar, why don't you begin.

Dr. MILLAR. Thank you, Mr. Chairman. I appreciate the opportunity to testify before the Subcommittee today on major hazardous chemical accident problems and prevention and on the parts of the proposed chemical safety legislation, S. 1384, that deals with extremely hazardous air pollutants.

The major hazard chemicals and processes involve the production, transportation and storage of ultrahazardous materials that can cause death and injury offsite in case of accidental release by toxic clouds, fire or explosion. Currently, in the United States, these major hazards are virtually unregulated by any level of government. The chemical industry is self-policing in this effect, and as on-going accidents have shown, they are far too complacent.

The chemical disasters in Bhopal and Mexico City in late 1984 have underscored a basic public policy need: To increase the ability of Federal, State and local governments to assess and reduce the risks of major hazard chemicals.

I must say here that I agree on this point that this is a different subject, and it is one that we are not particularly used to dealing with. It is a new area of public policy needed in the United States to deal with major hazard chemicals as opposed to the routine air emissions that we are more used to dealing with. Some of the European countries, however, are far ahead of the United States in regulating major hazard chemicals, because they had their accidents earlier. They had their accidents in 1974 and in 1976.

They had an accident in Seveso, Italy and in Flixborough explosion that killed 29 workers in England in 1974. That lead the European parliament to introduce the Seveso directive, which directs all the European nations to enact new regulations on major hazard chemicals.

In my statement, I summarize the basic features of that Seveso directive. I would like to point out that the SARA bill, which has been held up by CMA as a reason not to go forward with more comprehensive legislation, the SARA bill only accomplishes about two out of the eight or ten major provisions in any kind of a comprehensive national regulatory program.

I would like to also point out that the European nations' regulations should not be seen as any drastic shift in responsibility and liability away from the private companies to the governments. As the United Kingdom's "Guide to the Control of Industrial Major Accident Hazards Regulations of 1984" states, "An underlying principle of the Advisory Committee on Major Hazards' thinking has been that, as in the Health and Safety at Work Act of 1974, the primary responsibility for controlling and minimizing the risks should lie with those who create those risks."

Basically, the European countries have simply gone beyond that to say that the countries may also prove to the governments that they are handling these chemicals in a responsible way, doing everything to reduce risks and notifying the people about the risks that they have in their vicinity.

In my statement, I made four major arguments about why the United States should adopt a similar kind of comprehensive legislation and regulation on major chemicals hazards. I would like to only deal with one of those here, and that is, we have some new research findings from the chemical industry which are very startling and which are very sobering to people who are concerned about major hazards.

There are two kinds of research that are involved: One is the industry has sponsored some big research developments where they dump a huge quantity of toxic gas in the Nevada desert and watch it drift off downwind and then measure the concentration of that gas in gas monitoring systems downwind.

The results of that have shown that some of the toxic gases that we are dealing with are ten to 100 times more dangerous than was previously expected. There are some industries, like the oil and petroleum industry, that deal with hydrogen fluoride in their refineries, the amonia industry, the LNG industry, which are in serious trouble because they have underestimated the extent to which their facilities can cause offsite deaths and injuries.

The new research from the Federal government shows what, from the industry and the Federal Government, ironically, just as these results are coming in and being very valuable. There is an effort by the U.S. DOE to cut back the commitment to the Federal Government's research program. They want to zero it out, basically.

So we have got a real serious problem with, as in many other areas, with virtually no Federal program that can adequately help us assess these major hazards. The second research program I would like to mention is called the Design Institute for Emergency Relief Systems, or the DIERS studies. That was a 26-company, ten-year effort funded at $1.6 million which they have shown basically that the emergency release valves in chemical plants are most likely grossly undersized by a factor of 5 to 19.

This is research that was funded by the industry; it is a serious and responsible effort over a ten-year period to deal with this. I would like to point out that in both of these research efforts, there is nobody in the Federal Government or the public sector at all who has any responsibilities to keep up with this research, to summarize its findings for people or to oversee whether the sobering implications are being played out, in other words, whether improvements are actually being made in the chemical industry as a basis of their own research.

It seems like it is beyond the time when we need a Federal capability to be able to assess the hazards of some of our really dangerous facilities and also to deal with the necessary improvements. We have to take seriously the lessons we learned from Bhopal.

Let me say that one very sobering problem is that the chemical industry is not doing it very well themselves. The chemical industry has been told by the liability lawyers to shut up about their own accidents. When you go to a chemical engineering meeting now and you expect to hear accident case histories where engineers from one company are teaching engineers from another company how to clean up their act, instead, what you get is a very clear picture.

Our lawyers have told us to shut up, and we can't exchange that kind of information because of liability concerns that it choked off the professional safety structure of the industry.

So I think the public sector clearly needs to get out in front and clearly needs to do a job on this. We applaud the provisions of S. 1384. We think it is a very good comprehensive program. It certainly does not take the place of needed efforts at the State and local level, and it is building on the foundation that the Superfund law of 1986 has laid.

So we are very, very pleased with it. Thank you very much.

Senator **Baucus**. Thank you, Dr. Millar.

Dr. Goldstein, welcome back to the Committee.

Dr. **Goldstein**. Thank you, Senator.

Senator **Baucus**. You are an ozone expert and now you are a toxic pollutant expert. Why don't you proceed.

STATEMENT OF DR. BERNARD GOLDSTEIN, ROBERT WOOD JOHNSON MEDICAL SCHOOL, PISCATAWAY, NJ

Dr. **Goldstein**. I hope the EPA doesn't perceive me as the EPA representative.

I was asked by your staff to comment on a number of aspects of this, and I must apologize for not having received the proposed draft until last night, so my written testimony does not reflect my reading of it since that time.

I think there is a number of areas that deserve comment. One is to try to contrast what we know about the toxic air pollutants with what we know about the primary air quality pollutants. I think we have been reasonably successful as a nation in dealing with the primary air quality pollutants, although a lot more needs to be done. We have good reason to be able to firmly state that these are pollutants which can and, in fact, have caused adverse health effects. We have been much less successful in addressing those air pollutants, air contaminants we group under this toxic air pollutant heading.

I think part of it has to do with the fact that we really are not quite as sure, quite as willing to say, firmly and unequivocally, that at certain levels, these compounds have certain effects.

When you look at the failure of the Environmental Protection Agency to really cut down on the exposure to hazardous air pollutants, I think that some of it has clearly been lack of will on the part of the regulatory agency, some of it has been due to lack of clarity in the way that the Clean Air Act was written and how it is interpreted, but to a very large extent there has also been uncertainty as to whether or not the release of such compounds in the usual amounts they are released, not only accidentally but in the amounts present right now in this room, are really producing adverse effects.

I am not about to defend the overall EPA record in response to Section 112 of the Clean Air Act. I can tell you that when I arrived there in the fall of 1983, it was made very clear to me, as Assistant Administrator for Research and Development, that this was a major agency priority. I can further assure you that there was a specific tracking system, and I was called on the carpet many times for being sure that the research and development people provided the necessary information and the necessary documents for the regulatory part of the agency to get its decisions done on time.

So at that time, for sure, there was a major emphasis Beyond the usual reasons for bureaucratic inertia, there still remain, in my view, two major reasons for the slowness.

One was the fact that in Research and Development, we had to use far more qualifiers than we would like to use in discussing the adverse health effects at the levels that are present in the air; the scientific principles that we know do allow an extrapolation of the potential for harm to the levels that are present, and I don't want to belittle the fact that these adverse effects are going to be predictable and will occur, in my judgment, but on the other hand, I could not give the kind of unqualified statement that regulators genuinely wish to hear in order to guide their decision-making.

A second major inhibiting factor that I preceived had to do with the continual debates as to what it was the Congress really intended under section 112, and obviously, to the extent that you clarify this language, it will certainly help.

In terms of the specific parts of the proposed revisions that I have been asked to comment on, the Best Available Control Technology, in my judgment, is an excellent approach if it somehow can be modified to force technology. One of the problems with it historically has been that once you develop Best Available Control Technology and institute it, it is never perfect, but immediately, there is a cessation of research on technology available to make better Best Available Control Technology.

Revising the BACT every five years or something of that nature that would force continued research into development into better than Best Available Control Technology would be very useful.

The need to focus on accidental release, quite clearly, is something that is very important. I think we have to carefully describe what we mean by an accident. I have had the experience recently of looking at how some local groups have been dealing with this. In one case, in my judgment, inappropriately, a business was ordered to be closed and people were basically ordered to be thrown out of work because of a misunderstanding of what it is that we are trying to do here.

I think it is important that the Clean Air Act state it very clearly. I think it is also important in that context that we distinguish between the predictable accident, the once-in-a-week type of upset that we can regularly expect to occur, which really is part of the regular release of chemicals, and we should not consider this as an accident or something different than usual. We should differentiate that from the worst case scenario which are one in a million years types of scenarios, where everything fails, there is no containment whatsoever, none of the scrubbers work. From the point of view of health effects, it is a once-in-a-lifetime exposure. This means we do not need a margin of safety for bioaccumulation, nor do we have to worry about repetitive effects.

There are certain types of problems that we worry about with continual exposures that need not be worried about if it is once in a lifetime. I think we must keep that in mind. One of the positive aspects of looking at the worst case release, from the point of view of the worst case in technology, but only looking at a reasonable scenario on what the adverse health effects would be on this once in a lifetime exposure, is that it does focus on where we can improve, which is putting in better control technology in the plant rather than trying to focus on moving people around or changing life styles.

Let me conclude by pointing out that not all chemicals are the same; that we have major differences in the potential for adverse health effects of chemicals. When I did read through the draft, I was a little concerned that there perhaps may not be enough room for judgment, for risk management that needs to be done. Also, you don't define negligible effects in the draft, perhaps we are to assume that they are one in a million. You also don't really define what we mean by persons. I notice some wording in the draft is changed from public health to persons. Do you really mean that as a family, a few persons at a fence line are the only people that might be exposed to a one in a million type of risk? Well, if a family of four persons continued to reside there for a million years, there would be one additional case of cancer every 250,000 years? Is that really the grounds to close down a factory, particularly since a lot of the levels that we are talking about are probably even higher inside the home itself?

Thank you very much.

Senator MITCHELL. Thank you very much, Dr. Goldstein and Dr. Millar. I apologize to my colleagues on the Committee and to the witnesses for my being late for this hearing. Unfortunately, a special meeting of the Select Committee on the Iran-Contra Affair was called on very short notice, which I had to attend. That has just recently ended. So I am pleased to be able to be here to hear your concluding remarks, Dr. Goldstein.

I assure you, Dr. Millar, and the previous witnesses, that I will carefully review the testimony.

We will now go to the questioning. Senator Baucus?

Senator BAUCUS. Senator Durenberger is first.

Senator MITCHELL. I am sorry; Senator Durenberger?

Senator DURENBERGER. Mr. Chairman, in your absence, we also said very nice things about you.

Senator MITCHELL. Thank you very very much. Maybe I ought to leave again.

Senator DURENBERGER. Dr. Millar, you have heard Dr. Goldstein go through his critique of the bill before us and indicate in the advent of a lot of time we can get through it, but having lived over at EPA and having lived through a lot of the research and development responsibilities, I thought, to me, it was a helpful critique.

I appreciate your comments and your testimony about the problem and about the bill. Do you have some suggestions for us by way of improvements to the legislation as drafted?

Dr. MILLAR. I think that it might be useful to think about the fact that we don't have any national legislation that covers major hazards in a comprehensive way; that is, not only toxic cloud releases, but the kind of explosions and things that happened in Mexico City where 500 people were killed from a propane explosion from a government facility, and fire radiation dangers.

I don't see another vehicle to do that kind of work except this vehicle. We would have to talk about a whole separate major hazards bill or something if we were going to imagine some other vehicle.

That is just one thing we need to think about a little bit, I think.

The other thing is, I think in many regulatory systems that have been set up about major hazards, the basic funding principle has been some kind of user fee. In states like California and New Jersey and other places, the idea has been that the facility that imposes the risks on the population and makes necessary regulatory programs should somewhat be apportioned a fee, programs going into a trust fund of some kind to pay for that regulatory program. So that is just another possible thing that we can think of.

Senator DURENBERGER. I have been trying to do Bill Ruckelshaus' old emissions tax, a proposal on acid rain that can't get anywhere, because taxes are not popular, regardless of the purpose or regardless of what we call them, whether they are enhancers, user fees or whatever; they are not very popular these days. I appreciate both those suggestions.

Dr. Goldstein, I think we all appreciate the fact that you had rather short notice of this hearing, but we all enjoyed your tenure as the Assistant Administrator for Research and Development. It was a tough spot to be in, because there is so many demands on sort of a limited sphere of influence, so to speak. As you accurately pointed out, sometimes the resources that you need are not just the dollar resources; they come in other shapes and sizes.

One of those that always has concerned us, because we differ on it always as individuals and maybe as entities, is one of the resources is priorities, setting priorities within an institution, so that the human and other resources can be committed to sort of do first things first.

I wonder if you wouldn't reflect for us on the basis of your experience where you felt that the whole area of air toxics has been in the Environmental Protection Agency's set of priorities.

Dr. GOLDSTEIN. Certainly, during the time that I was there, it was very high in the agency's priorities. I think it would be very fair to say that a large reason it was very high in the agency's priorities was because of the stated concern by Congress that it be very high in the agency's priorities. I think that Administrator Ruckelshaus, during his nomination proceedings, was specifically asked whether he would adhere to getting those 25 chemicals done, and he said that he could, and he kept on referring back to his promise.

So there was no question that the agency felt very strongly about it. But there was also no question that it was, in large part, due to Congress making the agency feel responsible about it.

Senator **Stafford**. Doctor, you weren't there at the time that Mrs. Gorsuch was Administrator?

Dr. **Goldstein**. No, sir, I was not.

Senator **Durenberger**. Built into this legislation is very explicit language on air toxics research. It is deliberately designed for long-term research. I wonder if you would give us your views on the priorities in that area. Is it really possible for us to build a long-term research program and then to actually stay with it?

Dr. **Goldstein**. Yes, sir, it is possible to build a long-term research program, and it is possible to stay with it. There are some natural impediments to doing long-term research in any regulatory agency, and it has to do with the need to fight fires. They are things which will come up, and the public will demand to know; Congress will demand to know, and it is part of the job of the research and development program at a regulatory agency to drop what they are doing somewhere else and to do the fighting of those fires.

However, there is also a need to put appropriate perspective on what should be dropped when one goes and fights the fire, and that is a management problem for a research and development program. In my feeling, the level that I put as long-term, the priority I gave the longer term research program was in keeping with the priority that I heard from Congress and the priority that I heard from Administrator Ruckelshaus.

However, it was not in keeping with what was happening on a day-to-day basis when the fires came, so that there is clearly a need for a better management approach within EPA so that the wishes of Congress, the wishes of the Administrator and the wishes of White House are more accurately transmitted through the whole year rather than just at budget time.

Senator **Mitchell**. Senator Baucus?

Senator **Baucus**. Thank you, Mr. Chairman. Dr. Millar, you made an interesting point that with the onset of liability problems that company lawyers were advising the representatives at these conferences and what-not to not disclose the results of some of the tests and some of the research for fear that they may be subject to some kind of liability suit.

What thoughts do you have as to how that information can be made available to the best interests of the companies and the EPA and the public and just try to figure out what the data is and how we reach some positive, responsible results here?

Obviously, they are the source of a lot of information that I think they, too, would like to get out so long as they are not subject to a liability suit in the interest of good legislation to control the emissions of toxic pollutants.

Dr. MILLAR. I was specifically focusing mainly on trying to learn the lessons from actual accidents that have occurred and the fact that, in many of these meetings, it used to be the case that in the United States, we had a bulletin called the prevention bulletin that gave short synopsis of accidents and published these in a kind of sanitized way and shared that around the industry.

Various people in the chemical industry could then learn about other people's accidents in a way that gave the very basic lessons learned. That process is not working now. That bulletin has been dropped because of liability concerns.

So I think that, frankly, we need to have what the Europeans are doing, which is a Federal program to require companies to report fully about their accidents to a Federal agency that has the expertise to assess those accidents and learn the lessons.

It is very similar to the National Transportation Safety Board that we have in this country. They do that for transportation accidents. We have no counterpart in the Federal government for fixed chemical facilities. So we need something like that.

Senator BAUCUS. How is that working out? Do companies resist, or do they go along with that?

Dr. MILLAR. In Europe, the system has barely begun. The reporting periods in England, for example, have barely started. It is probably too early to say how it is working. I think, basically, in Europe, many of the chemical companies are used to complying with fuller regulatory programs than we have here.

I think they are sort of more used to obeying more stringent standards and doing a lot more regulatory work.

Senator BAUCUS. Essentially, part of that would be providing more information to the regulatory agency so that theoretically, probably in practice, better policy is formulated and then implemented?

Dr. MILLAR. Yes. I would like to say that what happened in Europe was a Europe-wide initiative. The Seveso directive was passed by the whole European Community. They told all the nations of Europe to begin a regulatory program on major hazard chemicals. That puts the United States in the position of being very much behind the developments in Europe on this front.

Senator BAUCUS. Could you further expand on the incident you mentioned earlier about the test in Nevada where, apparently, toxic gases were emitted and downwind effects were much greater than were anticipated? Who conducted that test and when was it conducted?

Dr. MILLAR. The Congress basically imposed on the Department of Energy a spills test facility, a multimillion-dollar facility in the test site in Nevada. The reason is it is a flat, table top kind of desert. You can drop a big quantity of gases. The wind will blow it downwind. You have perfect test conditions, as far as the outdoors, being perfect. It is a huge facility, so you don't keep very much of anything else as this cloud moves downwind.

The various chemical groups, like the Chlorine Institute and the amonia industry, the Fertilizer Institute, the U.S. Coast Guard, the Department of Transportation, the Department of Energy and various entities have sponsored research programs which cost about $1 million each where they dump quantities of these chemicals. They watch them go downwind, and they simply measure the concentrations downwind as a way of trying to validate their dispersion model.

When a chemical industry has a plant near a population, they have to have a dispersion model to estimate the risks. What we have found is that the current dispersion models that are being used by the companies until very recently have underestimated by a factor of 10 to 100 some of these dangerous dispersions; for example, amonia.

We have had some very big amonia releases in rural parts of the United States because amonia is used in big storage tanks as part of the nitrogen fertilizer process. There are huge storage tanks which sometimes release ammonia, for example, in Blair, Nebraska, and luckily, the wind was blowing the right way so that the ammonia cloud, which was very intense, blew away from the town and not into the town.

But there are gases like ammonia for which the previous dispersion models have just been inadequate. We are now getting information from these research programs.

Senator BAUCUS. These are government sponsored?

Dr. MILLAR. They are paid for by government and industry. It is a joint process.

Senator BAUCUS. In that joint process, it sounds like there is some information sharing. How does that sort of square with this effort?

Dr. MILLAR. The data should be, in effect, public data, although the industries are trying to, and in many cases, the industries would like to keep it proprietary, because they are not very happy with the results.

The results vary. Some industries have done research; shown some very scary results and then decided to do further research. Other industries have looked at the research and then said, "Oh, my Lord, we have got a real problem," and they have just walked away from it. They put all the research into a box and just walked away.

Senator BAUCUS. Does EPA have all this data?

Dr. MILLAR. No.

Senator BAUCUS. Why not?

Dr. MILLAR. There is no capability at EPA to monitor or regulate major chemical hazards, I mean, virtually none. This is just a new subject for them. They have never taken it up as an issue until and only when Congress imposed the Superfund Amendments of 1986 on EPA, and what happened? I mean, EPA was doing a voluntary program, the chemical emergency preparedness program, but EPA does not have a capability, as England has, to assess chemical hazards in plants and do research and all that about major chemical hazards. It is just not there.

Senator BAUCUS. I haven't had a chance to read your testimony. Maybe it is in the testimony. If it is not, could you please give us a summary of the European directive, whatever it is?

Dr. MILLAR. The Seveso Directive. The major principles are on page 2.

Senator **Baucus**. If you could give us a summary of it, a synopsis of it and compare it with current law and also with the bill introduced by Senator Durenberger?

Dr. **Millar**. Okay.

Senator **Baucus**. Not now.

Dr. **Millar**. I will be glad to do it.

Senator **Baucus**. But for the record, if you could do that?

Dr. **Millar**. Yes.

Senator **Baucus**. Thank you.

Senator **Mitchell**. Thank you very much, Senator Baucus, and also, thank you for chairing the Committee in my absence. I am very appreciative.

Senator Stafford?

Senator **Stafford**. Thank you, Mr. Chairman. Mr. Chairman, I didn't say anything nice about you this morning in absentia, because I wanted to be sure you were present when I said it. I think this is a good time for me to say that whatever success this Committee enjoyed in the environmental field in the 6 years prior to the current year was, in large part, due to the leadership of the Chairman of this Subcommittee, taken together with the other members who have been here this morning, who are the cadre of any success we will have in environmental affairs in this Congress: Senator Mitchell, Senator Baucus, Senator Durenberger, Senator Chafee led the league, and Senator Lautenberg.

So those who have been here, I can say to the witnesses and our guests, we have been talking to and listening to the Senators who are the key to whatever success we may enjoy as a committee and later on the floor of the Senate on environmental issues in this 100th Congress.

Having said that, expressing my gratitude to all who helped pass the laws of the land in the three Congresses, I now yield to the temporary. But I have got a question.

Senator **Mitchell**. Yes, it will be temporary. We appreciate your kind remarks, but your modesty, obviously, led you to leave out the most important factor of the success that this Committee has had for the past 6 years, and that success has been substantial, and I think I can confidently speak for every member of this Committee, past and present, and that factor was your distinguished leadership, the fairness, your lack of partisanship and the commitment to the protection of our environment are the hallmarks of your career, which will be sorely missed.

If I may digress a moment further, one of the mystifying but heartening things about democracy is how individual public officials come to represent and embody certain qualities. I think you well represent the people of your state generally, but also the people of Vermont may think that they have rugged independence and integrity, and when people think of Senator Stafford, they think of rugged independence and integrity. In a very heartening way, you have come to embody the fine characteristics of the people of your state, and we are very grateful to you.

Now, I will defer to you for questions.

Senator **Stafford**. Thank you very much, Mr. Chairman, for your very kind remarks. It has been a great pleasure to work with you and the other members of this Committee. I look forward to continuing to do so as long as I can.

Dr. Goldstein, were you here this morning during the testimony of the representative from the Chemical Manufacturers Association?

Dr. GOLDSTEIN. No, sir, I was not.

Senator STAFFORD. Were you, Dr. Millar?

Dr. MILLAR. Yes, I was.

Senator STAFFORD. First I want to acknowledge that chemistry has brought many great benefits to civilization. I don't think that has been mentioned lately, so I recognize that there has been a vast up side to the chemical industry of this country as well as the down side of the toxics that are getting into our atmosphere and our water and our ground.

Since, Dr. Millar, you heard the Chemical Manufacturers' representative, and his testimony indicated that very minute problem with much of the air and toxics as far as carcinogens are concerned and actual incidents of cancer, would you have any comment on what he said?

Dr. MILLAR. I think most of his comments were to what one called the routine emissions from chemical plants. The most disturbing aspect of the whole thing is that the burden of proof is on individuals who suffer the harm to come up with the evidence that they have suffered the harm but with a lack of ability to do that.

I just think it is not reasonable to suggest that we conclude in from the evidence that we have that there is no significant risk. I think people sort of intuitively know it is greater than that, and the struggle is to find ways of getting that evidence one way or another.

Senator STAFFORD. All right. Thank you.

I wish you had had a chance to hear that testimony, Dr. Goldstein, but I can't ask you to comment on something you didn't hear.

Dr. GOLDSTEIN. I did hear the figure of 0.2 percent that was given. I would point out that we have got to be very careful about numbers when we deal with cancer. 0.2 is a lot of cancer. It is a public health problem.

Senator STAFFORD. Thank you very much.

Thank you, Mr. Chairman.

Senator MITCHELL. Thank you, Senator Stafford.

Are there any further questions by any members of the panel? Thank you very much, gentlemen, for your testimony. The hearing is concluded.

[Whereupon, at 11:38 a.m., the Subcommittee was recessed, subject to the call of the chair.]

[Statements submitted for the record and the bill S. 1384 follow:]

STAPPA / ALAPCO

STATE AND TERRITORIAL
AIR POLLUTION PROGRAM
ADMINISTRATORS

ASSOCIATION OF
LOCAL AIR POLLUTION
CONTROL OFFICIALS

S. WILLIAM BECKER
EXECUTIVE DIRECTOR

Testimony of

Bruce K. Maillet

Director, Massachusetts Division of Air Quality Control

on behalf of the

State and Territorial Air Pollution Program Administrators

and the

Association of Local Air Pollution Control Officials

on S.1384

before the

Senate Environment and Public Works Subcommittee on

Environmental Protection

June 19, 1987

[illegible] NORTH CAPITOL ST. N.W. WASHINGTON, D.C. 20001

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Mr. Chairman and Members of the Subcommittee, my name is Bruce Maillet, and I am the Director of the Massachusetts Division of Air Quality Control. I appear here today on behalf of STAPPA, the State and Territorial Air Pollution Program Administrators, for which I serve as Chairman of the Air Toxics Committee, and ALAPCO, the Association of Local Air Pollution Control Officials.

STAPPA and ALAPCO are the national associations of air pollution control agencies in the 54 states and territories and more than 150 major metropolitan areas across the country. The associations' members have primary responsibility for ensuring healthy air quality for our citizens and represent the technical expertise behind the implementation of our nation's air pollution control laws and regulations.

I would like to begin by commending Senator Durenberger and the cosponsors of S.1384 for this effort to address one of our nation's most threatening health and environmental problems--toxic air pollution. Your initiative in introducing this important and long-overdue piece of legislation will greatly enhance the ability of state and local air officials to more aggressively and effectively regulate toxic air pollutants. For this we applaud you. I would also like to thank you for allowing me this opportunity to present the associations' views on this bill.

The Environmental Protection Agency has concluded that routine releases of a variety of toxic air pollutants may cause as many as 2,000 cases of cancer each year, with individual risk running as high as one in three. However, the magnitude of the problem is even greater than these statistics indicate. These numbers reflect only the effects of a small group of pollutants. In addition, non-cancer effects, birth defects and non-cancerous kidney and lung disease related to exposure to toxic pollutants are not reflected in these estimates, nor are mutagenic and teratogenic effects that result from the reaction of toxic pollutants in the urban atmosphere.

And attempts to quantify the magnitude of this situation cannot end here. The risks associated with accidental releases of toxic air pollutants add an entirely new dimension to this problem. EPA studies show that between 1981 and 1985 there have been nearly 7,000 reported cases of toxic chemical accidents resulting in 138 deaths and over 4,700 injuries. In addition, more than 200,000 citizens were forced to evacuate their homes, only to return to extensive environmental and property damage. Studies indicate that the average economic impact for each of 64 accidental releases over a 28-year period was $30 million.

These statistics illustrate the severe health consequences associated with exposure to toxic air pollutants. In fact, EPA has concluded that the risks to public health from air toxics far exceed those from most other environmental media ("Unfinished Business: A Comparative Assessment of Environmental Problems"). Yet despite overwhelming evidence that the most widespread human exposure to toxic pollution occurs from breathing the air around us, the federal program for regulating hazardous air pollutants has been largely ineffective to date, relying upon implementation of Section 112 of the Clean Air Act and voluntary efforts of state and local air quality agencies to control "high risk" sources and the "toxic soup" that exists in many of our cities.

Section 112 of the Clean Air Act was intended to protect the public from any pollutant that "causes, or contributes to, air pollution which may reasonably be anticipated to result in an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness." This provision requires

EPA to identify hazardous air pollutants and, accordingly, set national standards. Unfortunately, progress under this system has been painfully slow; in the past 17 years, EPA has listed only eight hazardous pollutants and has set national standards for only seven of these. This relative inaction is simply unacceptable.

In addition, STAPPA and ALAPCO have serious reservations abput the risk management process by which EPA makes its decisions to regulate hazardous air pollutants under Section 112. Risk management is used by EPA to determine which pollutants will be federally regulated and which will be left for regulation by state and local air quality agencies. Once EPA decides that a pollutant will be regulated under Section 112, the agency also uses risk management to set appropriate standards. In addition to leading to inconsistency among states, such an approach is also responsible for the lack of a minimum control requirements for sources of toxic air pollutants. Under a risk management approach, sources that emit carcinogens and other air toxics are able to escape control requirements if EPA determines that the national risk is not sufficient to warrant controls even though the individual risk from these facilities may be quite high. In fact, EPA has neglected to regulate a number of facilities that pose risks to individuals as high as 1 in 100. STAPPA and ALAPCO believe it is inappropriate for EPA to accept risks in the air program that are over 1,000 times higher than risks from other environmental media, and are concerned that such a policy could continue to encourage treating the atmosphere as a "dumping ground" for other environmental problems.

As a result of the ineffectiveness of the federal regulatory program for air toxics, responsibility to develop and implement regulatory programs has been placed in the hands of state and local agencies. While it is entirely appropriate for state and local air quality agencies to continue to play a significant role in controlling toxic air pollutants, we are convinced that success will only be realized if our efforts are complemented by a comprehensive and effective federal regulatory program.

The members of STAPPA and ALAPCO have adopted a position on toxic air pollutants that seeks to address the development of such a comprehensive federal program. The STAPPA/ALAPCO position recommends that the process for identifying hazardous air pollutants be simplified and accelerated; at a minimum, the Best Available Control Technology be required for all new and existing facilities; and research efforts be increased and accelerated.

The associations are currently in the process of revising their policy and will be considering refinements next week at their semi-annual membership meeting. At that time the members will consider a proposal to revise the process for identifying toxic air pollutants. In addition, the members will consider an amendment to group toxic air pollutants into various classes. We believe that both of these concepts would greatly simplify and accelerate the regulatory process.

S.1384 embodies many of the principles that STAPPA and ALAPCO have already adopted or will seriously consider in the next week. This important piece of legislation proposes to increase federal involvement in regulating toxic air pollutants by establishing a comprehensive national air toxics control program. In addition, like STAPPA and ALAPCO, S.1384 recognizes the need to accelerate the identification and control of air toxics. Moreover, this bill includes provisions for technology controls for both new and existing sources and calls upon both the federal government and industry to expand research efforts.

At this time, I would like to offer some specific comments on S.1384 .

Section 112 (b) of S.1384 contains several definitions that clarify the types of pollutants, facilities and controls covered by the bill.

First, the legislation expands the definition of "hazardous air pollutant" to include not only carcinogenic effects -- which seem to be the principal focus of EPA's current regulatory program -- but also mutagenic, teratogenic, neurotoxic, synergistic and environmental effects. STAPPA and ALAPCO support this change to the act and believe it will afford the public greater health protection and reduce environmental hazards.

Second, the bill defines "best available control technology" as an emission limitation based on the maximum degree of emission reductions which are achievable, and requires facilities emitting toxic air pollutants to adopt the most stringent emission limits met by other similar sources. STAPPA and ALAPCO believe it is appropriate to require the best controls on new and existing facilities that emit toxic air pollutants. The associations also concur that new facilities should adopt the most stringent emission limit required of similar facilities, particularly since it is far easier and less costly for a source not yet constructed to incorporate these stringent emission limits into its plant design. However, some existing sources could experience problems in meeting this requirement, ranging from significant control costs in treating their emissions to difficulties in making appropriate modifications to their operations. STAPPA and ALAPCO suggest, as an alternative, that the bill require existing facilities to review, but not necessarily adopt, the most stringent emission limit achieved in practice. If the facility owner demonstrates that public health will be adequately protected by a less stringent emission limit, he should be allowed to adopt it instead.

Third, S.1384 defines "major source" as any stationary source which emits ten or more tons per year of toxic air pollutants. STAPPA and ALAPCO support this provision for at least two reasons. First, although the threshold in the existing Clean Air Act is set at 100 tons per year, a significant portion of toxic air pollution originates from smaller facilities. Second, some states are already regulating these smaller sources and have encountered little opposition from industry. For example, in both Massachusetts and Ohio, there is no lower limit on the size of the facility these agencies control.

Fourth, the bill defines "area source" as any stationary or mobile source which emits a toxic air pollutant (under subsection (d)) and which is not a major source. STAPPA and ALAPCO are pleased that the bill regulates area sources, particularly in light of their contribution to the total toxic air pollution problem, which EPA estimates to be 75 percent. As we suggest later in our testimony, however, we urge you to limit the area source requirements under subsection d (3) to non-major stationary sources and insert a new section regulating mobile source emissions.

Fifth, the bill defines toxic air pollution as any chemical or substance subject to the requirements of Section 313 of the "Emergency Planning and Community Right-to-Know Act of 1986." While this list may be appropriate for identifying toxic air pollutants for control, we believe there may be a more manageable process -- one of designating classes (rather than individual toxic air pollutants) -- which we will describe later.

Finally, S.1384 defines "stationary source" as any "facility or installation or unit of such facility or installation" which may emit any air pollutant. STAPPA and ALAPCO support this provision, which will prevent sources from escaping new source review requirements as they currently are able to do under EPA's netting rules.

Section 112 (c) of S.1384 regulates substances initially intended to be covered by the NESHAPS (National Emission Standards for Hazardous Air Pollutants) program in the Clean Air Act. It requires EPA to publish a list of hazardous air pollutants for which emission standards will be established, and identify the categories of sources emitting these pollutants in greater than de minimis amounts. In addition, the bill requires EPA, within three years, to promulgate regulations establishing emission standards for each hazardous pollutant. In determining the standard, EPA may not consider costs, technological feasibility and other factors. S.1384 requires new sources to comply with the standards immediately, but allows existing sources two years to achieve the standards.

STAPPA and ALAPCO support the listing provisions contained in Section 112 (c). We believe that listing specific hazardous air pollutants will greatly accelerate the regulatory process, and agree that you have identified the appropriate initial list of pollutants to be included.

Our associations are also pleased that the sponsors of the legislation have proposed to end EPA's practice of "intending" to list hazardous air pollutants. Under such an approach, EPA announces that it is considering regulating a pollutant based upon health information the agency has collected, but indicates that it will not make a final decision for four years or more. This "non-decision" places state and local agencies in a difficult situation. While EPA's objective may be to encourage agencies to regulate the pollutant until a federal decision is made, it often has the opposite effect. Many state and local agencies hestitate to regulate these pollutants for fear of being presumptuous of EPA's ultimate decision. STAPPA and ALAPCO approve of the provision in S.1384 requiring EPA to establish an emission standard when the agency has listed a hazardous air pollutant.

Section 112 (c)(1)(E) requires the Administrator to set an emission standard for hazardous air pollutants "at a level at which no known or anticipated adverse effect on the health of persons occurs including an ample margin of safety ...." (emphasis added). We urge Congress to clarify the intent of "ample margin of safety," particularly for pollutants having no known threshold.

STAPPA and ALAPCO support the bill's provisions providing a more realistic schedule than the existing 180-day requirement for setting emission standards once a pollutant is listed. We agree that EPA should propose a schedule for public comment which would allow up to three years for the agency to promulgate regulations. STAPPA and ALAPCO also suggest that Congress consider a forcing mechanism to ensure that EPA promulgates emission standards within three years, and we will be happy to work with you to pursue this concept.

Finally, with respect to Section 112 (c), STAPPA and ALAPCO agree that existing sources should be provided additional time (i.e., two years) to comply with their emission standards. The associations also recognize that since some facilities may still experience difficulties meeting their requirements, extensions, as specified in the bill, may be appropriate.

Section 112 (d) of S.1384 regulates toxic air pollutants which are initially defined as those pollutants regulated under Section 313 of the "Emergency Planning and Community Right-to-Know Act of 1986." The bill establishes a list of toxic air pollutants, describes a process for adding or deleting pollutants, requires EPA to publish a list of categories of major sources emitting these pollutants, and imposes emission standards on these categories equivalent to the best available control technology. S.1384 allows existing sources three years to comply with the standards, with a two-year extension available.

STAPPA and ALAPCO believe that the standard-setting process described under subsection d(2)(B) can be simplified. While the sponsors have proposed improvements to the existing law by imposing emission standards on categories of major sources, the bill still requires specific standards for each of the individual toxic air pollutants listed. STAPPA and ALAPCO offer a simpler alternative that may aid in avoiding unnecessary delays and increased costs. Our recommendation is that S.1384 be amended to establish "classes" of toxic air pollutants. Under this approach Congress (or EPA) could establish generic classes of toxic air pollutants, such as products of incomplete combustion, metals, and volatile organic compounds (or subgroups thereof), and set emission standards for each class of pollutants. In order to control those toxic air pollutants that do not fall within a specific class, the bill could still require standards to be set for individual pollutants. Such an approach, which is similar to the manner in which we regulate ozone (via reductions in volatile organic compounds), would simplify our regulatory efforts by focusing on a manageable number of decisions and directing our emphasis to those groups of chemicals which are most important to control.

STAPPA and ALAPCO support the provisions of subsection d(1)(C), which delineate the criteria for delisting pollutants. EPA may delist a pollutant and subject sources to less stringent emission limitations if public health is still protected and if compliance with the original standard "would impose extraordinary economic costs" on the sources. We suggest that Congress clarify "extraordinary economic costs."

STAPPA and ALAPCO believe the major source categories identified under subsection d(2)(A) are appropriate and support the staggered approach for establishing emission standards for these sources under subsection d(2)(1). However, we suggest that the 10-year deadline for completing emissions standards for all of the categories is far too long and urge that they be completed within five years.

Under subsection d(2)(C), existing sources have three years to comply with their emissions limitations, although the Administrator may grant an additional two-year waiver under certain circumstances. STAPPA and ALAPCO believe that, while most existing facilities should be able to comply with their emission limitations within the three-year time frame, a two-year extension to this deadline may be appropriate for some sources. However, since the practice of awarding waivers should not be a routine one, we suggest that sources granted waivers be assessed an emissions fee. Such a fee should be set at a level that would discourage routine requests for waivers and only allow them when they are absolutely necessary. STAPPA and ALAPCO suggest that these fees revert to state and local agencies to perform their responsibilities under this bill.

Section 112 (d)(3) of S.1384 proposes to regulate area sources (i.e., non-major stationary and mobile sources) which emit toxic air pollutants regulated under this section. The Administrator is required to publish a list of categories of area sources, estimate the quantity of emissions by each category, and use appropriate authorities under existing Federal statutes to set requirements which will achieve reductions in area source air toxic emissions of 25 percent within four years and 55 percent within ten years.

STAPPA and ALAPCO concur with the sponsors of S.1384 that area sources contribute significantly to our nation's air toxics problem. As we indicated earlier, these sources may contribute as much as 75 percent of the total problem. While we support the concept of addressing area sources in air toxics legislation, we wish to make two observations about the provisions in this bill. First, STAPPA and ALAPCO believe that the objectives -- 25 percent reductions in four years and 55 percent reductions in ten years -- are ambitious. While most area sources are not now regulated for their air toxics emissions, they, nonetheless, will be difficult to control on an individual basis. Consequently, the ability to meet these objectives will depend greatly upon EPA's ability to develop appropriate regulations aimed at the suppliers and distributors of the individual area sources. Second, we suggest that the sponsors of S.1384 treat separately the mobile source component of the area source problem and include a specific set of provisions for regulating motor vehicles. The motor vehicle provisions, at a minimum, should include requirements for: Stage II Vapor Recovery; onboard controls; fuel volatility limits; a phase-out of sulfur and lead in fuel; diesel particulate controls; and appropriate changes to the tailpipe standards.

Section 112 (e) of S.1384 regulates the sudden and episodic releases of extremely hazardous substances. With respect to sudden releases under subsection (2), the EPA Administrator is required to publish a list of extremely hazardous substances (drawn from Section 302 of the "Emergency Planning and Community Right-to-Know Act of 1986"), and require the owner of the facility at which the substance is present to conduct a hazard assessment for each substance. This subsection also creates an independent safety board which is required to investigate chemical accidents, report on its findings, and make appropriate recommendations to EPA on proposed release-prevention rules. EPA is then required to promulgate release prevention, detection and correction requirements. Subsection e(3) requires the EPA Administrator to publish a list of extremely hazardous substances which may be emitted from non-sudden or episodic releases causing acute or chronic health effects, and set release detection, prevention and correction requirements. Annual audits and safety inspections are also required for facilities emitting these substances.

STAPPA and ALAPCO support the general principals embodied in this section of the bill. The requirements for facility hazard assessments will greatly enhance our ability to prevent accidental releases of extremely hazardous substances. Additionally, the requirement for EPA to establish a long-term research program to develop information on methods and techniques for assessing hazards should prove beneficial. Moreover, the Chemical Safety and Hazards Investigations Board, created by subsection C, could play a constructive role in investigating chemical accidents.

Section 112 (f) establishes a program for state delegation. Upon approval by the EPA Administrator, states may obtain partial or complete delegation to control hazardous and toxic air pollutants and prevent the release of extremely hazardous air pollutants. EPA is required to publish guidance for the states to develop their programs. This subsection also provides technical and financial assistance to state and local agencies by establishing an air toxics clearinghouse and making available grants for developing and implementing programs.

STAPPA and ALAPCO support the delegation provisions of Section 112 (f). This subsection will ensure that state and local programs will be implemented in a nationally consistent manner with appropriate federal oversight. We concur with the permitting requirements for new and existing facilities which should result in steady progress for reducing risk from exposure to hazardous and toxic air pollutants.

STAPPA and ALAPCO applaud the sponsors for the provisions in subsections 112 (f) and (h) calling for technical and financial assistance and research. EPA's existing National Air Toxics Information Clearinghouse is an agency success story and one that we would be pleased to see embodied in law. We strongly support the extensive research program in the bill, which we believe is critical to the success of the entire program. We are also pleased that the sponsors have provided financial assistance to state agencies, including grants in fiscal years 1988 - 1992, as well as training. We urge the sponsors of this legislation to ensure that sufficient funds are appropriated each year to implement the provisions of this bill.

In conclusion, STAPPA and ALAPCO are pleased that the sponsors of S.1384 have developed an effective program for reducing risks from exposure to hazardous and toxic air pollutants. We applaud your leadership in addressing this issue and would like to work with you in the future to refine this legislation.

Thank you for this opportunity to testify.

CMA

CHEMICAL MANUFACTURERS ASSOCIATION

WRITTEN STATEMENT OF

DR. ROBERT C. FORNEY
E. I. DU PONT DE NEMOURS AND COMPANY

ON BEHALF OF THE
CHEMICAL MANUFACTURERS ASSOCIATION

BEFORE THE
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

REGARDING
AIR TOXICS CONTROL

JUNE 19, 1987

2501 M Street, NW • Washington, DC 20037 • Telephone 202/887-1100 • Telex 89617 (CMA WSH)

Background & Overview

The Chemical Manufacturers Association (CMA) is a non profit trade association whose member companies account for more than 90% of the total productive capacity for basic industrial chemicals in the United States. CMA has been actively involved in federal, state and local legislative and regulatory initiatives that have dealt with toxic chemicals released into the air. In addition, we have undertaken a number of voluntary initiatives to address public concern associated with toxic chemicals. We have appeared previously before the Environment and Public Works Committee to provide our views on the regulation of toxic air pollutants. There is a need for effective regulation in this area and we believe that EPA and the states should continue to be provided with the necessary resources to accomplish the task. We welcome today's opportunity to give you our views.

CMA strongly supports effective regulation of air toxics. We believe that substantial progress is currently being made in addressing the air toxics issue and that present law along with private and governmental initiatives provide a sound legal and technical basis for adequate controls. Therefore, CMA cannot support the Section 112 Amendment introduced yesterday as S. 1384.

Our comments focus on four major activities which provide the necessary framework for controlling toxic air pollutants. These are: (I) The National Air Toxics Control Strategy of the Environmental Protection Agency (EPA); (II) data gathering activities under Title III of the Superfund Amendments Reauthorization Act (SARA); (III) development of health based community exposure guidelines; and (IV) implementation of the CMA Air Quality Policy. We also are providing our initial observations concerning the proposed Section 112 Amendment, (S.1384).

Before addressing these four activities, we wish to emphasize a principle basic to proper consideration of this issue: accidental releases must be managed separately from routine or process emissions of toxic air pollutants. The approaches to achieve proper controls in these two areas differ fundamentally. The control of accidental releases requires prevention of accidents as a first-line defense. Prevention focuses on process safety analysis and process safety management as the keys to successful minimization of accidental releases. Emergency response and preparedness efforts are important should an accidental release occur and these efforts are properly addressed under SARA Title III and CMA's Community Awareness and Emergency Response ("CAER") Program.

A successful program to reduce process emissions, on the other hand, requires the following: emission inventories, health impact assessments, evaluation of available control technologies and necessary measures to reduce emissions to protect public health. We are concerned that S.1384 does not recognize the distinction between these two types of releases.

I. Existing Federal and State Programs Provide a Sound Framework For the Management of Air Toxics Issues

It has been two years since EPA announced its national air toxics strategy. Under this comprehensive program, EPA has made substantial progress in evaluating, screening, and controlling toxic substances. Under Section 112, EPA presently has thirty-six substances under assessment for potential regulation as National Emission Standards for Hazardous Air Pollutants, NESHAPS. Assessments are planned for an additional thirteen substances. EPA has made decisions not to regulate fourteen substances. Eight substances have been listed for regulation under Section 112 of the Clean Air Act, and EPA intends to list an additional ten substances under Section 112. This is a total of eighty-one substances which have been processed or are in the EPA decision making plans for regulation under Section 112. The Section 112 regulatory program for hazardous air pollutants is progressing at an acceptable rate, and CMA encourages the EPA to continue with regulatory programs such as the Hazardous Organics NESHAP, which offer the potential benefit of an accelerated but technically appropriate process for reviewing substances under Section 112.

The EPA record for making listing decisions is not perfect. It has improved over the last two years, and EPA must continue to move substances through the 112 regulatory process without unnecessary deliberation. Delegation to the states without proper EPA guidance will be counterproductive to making Section 112 the primary vehicle for regulating point sources. Other EPA research and regulatory activities are influencing the control of toxic air pollutants. Among these activities are the development of a fugitive emissions protocol for organic chemical manufacturers, secondary emissions standards for the control of air emissions from hazardous waste treatment, storage, and disposal operations and New Source Performance Standards (NSPS) under Section 111 of the Act. We are especially interested in the development of site specific emission factors for estimating fugitive emissions. We believe that current research programs on fugitive emissions underway at CMA will provide needed information for use by EPA and the states in managing future regulatory programs dealing with toxic air pollutants.

States are assuming an ever increasing role in regulating air toxics. In the March 1987 report prepared by the General Accounting Office (GAO), it was noted that all but four states have air toxics programs in place or under development. The GAO report also discusses the variability in state programs in terms of which air toxics are regulated, what control strategies are used, and how an acceptable exposure level is determined for the ambient air. CMA agrees with the GAO's conclusion that EPA should establish criteria for what represents a good state air toxics program. This would provide consistency in state programs and also enable states and localities to manage specific problems differently depending on unique situations. This assistance can be provided within existing legislation. The states should continue to have a major responsibility for controlling local sources of all air pollutants including toxic air pollutants.

It is also important to recognize that the control of precursors to ozone such as VOCs and NO_x have reduced overall emissions of toxic air pollutants. In its study prepared for the development of the Air Toxics strategy, EPA cited the following information concerning the criteria pollutant program to reduce specific air toxics levels. "EPA's criteria pollutant programs appear to have done more to reduce air toxics levels than have regulatory actions aimed at specific toxic compounds." As pressure increases to reduce ambient levels of ozone, corresponding further reductions in specific toxic air pollutants can be expected.

It is clear from the current regulatory programs that Section 112 of the Clean Air Act is not always the appropriate vehicle or most effective means to control air toxics. In addition to the programs mentioned above, Section 111(d)(1) of the Clean Air Act provides for regulations to be established for substances not covered by ambient air quality standards or NESHAPS. This section has rarely been used by EPA, but it gives EPA the authority to regulate any additional toxic air pollutants that may not meet the Section 112 criteria. With this and other provisions already in the Clean Air Act which address both new and existing sources, it is not necessary to adopt additional legislation to control routine or process emissions of air toxics.

II. Title III of the Superfund Amendments Reauthorization Act (SARA) Will Provide Valuable Data for Planning Purposes and Management of Accidental Releases and Process Emissions

By implementing SARA Title III, EPA and the states are obtaining valuable data to make future decisions on the adequacy of current programs to control releases of toxic air pollutants. Under Section 305 of SARA, EPA is conducting a survey of manufacturing practices using hazardous chemicals. This survey will focus on procedures to control emissions resulting from the storing, processing, manufacturing or using twenty specific chemicals. Results of this survey will provide information on hazard evaluation procedures, management practices, process controls, preventive maintenance, and release mitigation efforts. CMA is encouraged with the industry questionnaire, which will provide the major portion of the Section 305 data base. The survey information should be fully digested by EPA, the user industries and the states prior to the enactment of any additional clean air legislation dealing with accidental releases.

Under Section 313 of SARA, most industries that are manufacturing, storing or using certain chemicals are required to furnish emission inventory information on July 1, 1988, for emissions during 1987. The emission inventory data will include air emission estimates for over three hundred substances and chemical compounds. Compiling this information offers a major challenge for EPA. The Agency must be given time to compile and analyze the information to determine whether additional controls are needed for toxic air pollutants. Again, it is in everyone's best interest to let EPA and the states review this information before the consideration of additional Clean Air Act legislation.

SARA Title III will generate much needed information that will provide perspective on any potential problem resulting from toxic air pollutant emissions. CMA and other organizations are investing significant effort on risk communication concepts to help the public understand the SARA Title III information. We also support EPA's efforts in this important issue of explaining environmental risk. These communication activities should result in a better understanding of the significance of the Section 313 data.

EPA and the states are already severely burdened with implementing Title III. We strongly believe it would be counterproductive and interfere with SARA's implementation to impose any additional regulatory burden on state and federal agencies at this time.

III. Various Organizations Are Working Toward the Development of Community Exposure Guidelines.

One of the major difficulties in regulating toxic air pollutants is the problem of establishing appropriate community exposure guidelines. However, there is considerable activity in this area which promises to be of value to EPA and the states in establishing ambient concentration guidelines. The GAO report on state air toxics programs notes widespread use of Threshold Limit Values (TLVs) as a basis for developing ambient air exposure guidelines. The American Congress of Government Industrial Hygienists (ACGIH) is concerned this is an inappropriate use of TLVs, which were developed for work place exposures. Seperate standards for community exposure are being planned by ACGIH as a response to this effort. CMA and the American Industrial Health Council (AIHC) are also reviewing the issue of community exposure guidelines and other health-based approaches. We encourage further discussion by EPA on the appropriateness, proper use and development of additional information concerning community exposure guidelines.

In addition to health-based indices, there is a proper role in the decision making process for risk assessment and risk management. The risk assessment and risk management steps do not have to be the only basis for decision-making, but information developed from a properly conducted risk assessment is a valuable decision-making tool. It should be one of several factors used by government agencies in making a regulatory decision. However, risk assessment should not be used as a technique to delay regulation. Risk assessment information prepared by EPA should be available to the states to assist with managing potential toxic air pollutants not regulated as NESHAPS by EPA.

IV. CMA's Air Quality Policy Is A Significant Step Forward In Managing Accidental Releases and Process Emissions

In January, 1986, CMA adopted an Air Quality Policy which addresses the foundation elements for a successful toxic air management program (Appendix A). The policy is designed to:

-- promote practices to minimize accidental releases and to control process emissions of air toxic materials;

-- address public concern about health effects from accidental releases and process emissions; and

-- develop better information on accidental releases and process emissions, and their effects, in order to assure fully informed action by both government and industry.

Response to the policy has been positive. A significant portion of the CMA membership is already well into the process.

One part of the program dealing with accidental releases is the Chemical Awareness and Emergency Response (CAER) program. CAER's mission is to coordinate and improve emergency response planning in plant communities and to make the public more aware of and familiar with industry operations. Plant employees work with local emergency response officials, other local industries and interested citizens to develop or improve community capability for responding to a chemical release.

The community planning committees organized under the CAER Program are now serving as local emergency planning committees under SARA Title III in many locales. The interrelationship developed between industry and the community through CAER has provided models and a wealth of valuable experience which readily transfers to the federal SARA Program.

In the area of process emissions, CMA member companies are developing emission inventories of air toxic emissions and assessing the impact on the surrounding community. Companies are reducing these emissions as necessary to safeguard employees, public health and the environment.

V. S.1384 As Proposed Unnecessarily Complicates the Regulation of Toxic Air Pollutants and Will Delay Effective Control of Process Emissions and Management of Accidental Releases

We have recently received S.1384 for review, and the time between the bill's introduction and this hearing was too short to conduct a thorough and complete analysis. Our initial impression is that the proposed legislation attempts to control accidental releases and process emissions through a complex and confusing regulatory program centered entirely on Section 112. Section 112 is not the only vehicle, or necessarily the appropriate vehicle, for handling all of the proposed regulatory controls. We have already discussed the many sections of the Clean Air Act that are, and can be, effectively used to assist in the control of toxic air pollutants.

S.1384 also includes new definitions of important terms that are already defined elsewhere in the Act or by the courts. The bill would apparently also prohibit consideration of benefits, economics, and technological feasibility. CMA supports the evaluation of all these factors as part of any standard setting process and believes their removal would be counterproductive to a reasoned setting of standards and the overall economic priorities of the country.

A major problem with the proposed legislation is its unrealistically severe emission standards. Science doesn't justify this extreme response to hazardous or toxic air pollutants. Such levels of control combined with a prohibition against consideration of technological feasibility and economics present an untenable situation. Lee Thomas has correctly observed that "...the cost of further environmental improvements in many areas will be high. The unit cost of moving even closer to the point of zero discharge, zero contamination and zero risk increases exponentially."

The draft bill includes definitions of important terms that are already defined elsewhere in the Act. For example, "Best Available Control Technology," as represented in S.1384 drastically expands and conflicts with the existing BACT definition in Section 169 of the Act. The liberties taken with the proposed Section 112 definition now correspond more closely to a "Lowest Achievable Emission Rate" (LAER) standard, which is already defined in yet another section of the Act. This overlap of definitions is so broad and vague that the regulatory process will be substantially overburdened. The customized well-established definitions are further compounded by specifically eliminating consideration of benefits, economics, energy or technological feasibility in the emission standards setting process.

CMA is extremely concerned with the addition of "adverse effects to the environment" in the definition of a "hazardous air pollutant". The consideration of environmental effects for hazardous air pollutants will hinder EPA's progress in developing additional emission standards under the existing Section 112 program. It is clear from S.1384 that the emission standards which are to be developed for hazardous air pollutants are not well thought out for determining environmental effects. CMA believes that information concerning environmental effects has not been sufficiently developed to support this legislation. We encourage further research into this area before the definition of a hazardous air pollutant is changed.

The proposed draft bill introduces yet a third category, "Extremely Hazardous Air Pollutants," which violates a principle that is basic to the consideration of this issue. We firmly believe accidental releases must be managed separately from routine or process emissions of air pollutants. The risk posed by accidental releases is generally an acute exposure to an episodic release, whereas the risk from process emissions is chronic health effects, resulting from long-term exposure to low concentrations. The approaches to achieve proper controls in these two areas differ fundamentally. The "Extremely Hazardous Air Pollutants" (EHAPS) concept intermixes non-sudden and episodic releases and is doomed to failure. For example, chlorine might almost certainly be listed as an EHAPs because of its potential for episodic release and its acute toxicity, but the threshold of toxicity is fairly high.

We are continuing to review all the provisions of S.1384. Because of the rapidly changing drafts that we have only very recently had an opportunity to review, it is difficult to give more than an initial reaction to major concepts. We strongly believe legislation is not needed at this time, but we will continue to share information developed from the implementation of our Air Quality Policy and other information which may lead to more effective regulation of toxic air pollutants.

VI. Conclusion

CMA supports the effective regulation of toxic air pollutants. It is, however, inappropriate to adopt additional air toxics legislation at this time. EPA and the states are well equipped with existing authority under the Clean Air Act and additional authority in SARA and other environmental laws to develop control programs for toxic air pollutants. We are encouraged with the Agency's progress in regulating substances under Section 112 as well as the inventory and other data gathering activities under SARA Title III. We especially believe that information from SARA Title III will be extremely valuable in identifying potential programs which may be necessary for controlling accidental releases and in identifying chemicals for which further assessment may be needed for possible controls on process emissions.

S.1384 is too complex and confusing and will actually result in slowing down the regulatory process needed for addressing toxic air pollutants. The confusion of control standards, addition of more sources to be regulated, and an imposition of mandatory and unrealistically stringent standards for a large list of chemicals will only be counter-productive to public health. Extensive regulatory delay and possible litigation will result.

CMA and its member companies are continuing to develop better information on process emissions and prevention programs for accidental releases and are sharing it with the public and government. This information added to the activities of EPA and other organizations evaluating the technical information needed to address air toxics provides a sound foundation to address the need for additional regulations in the future.

(APPENDIX A)

AIR QUALITY CONTROL POLICY

It is the policy of CMA to promote among its member companies practices that protect the safety and health of employees and of the residents of communities in which they operate. Our industry's goal is to assure that employees and communities are not adversely affected by our operations.

CMA understands the public concern regarding health effects from releases into the air of toxic materials. CMA also believes there is a need for better information on the effect of these releases to assure fully informed action by both government and industry. Therefore, in order to protect employees, public health and the environment, CMA member companies are undertaking a major program to expand and expedite efforts to minimize accidental air releases of toxic materials, control process emissions and increase understanding of the health effects from these releases and emissions. This program, which is recommended for implementation by each member company at each of its operations, has the following action elements:

For accidental releases:

1. Identify materials which if released could pose a risk of harm to employees, community health or safety.
2. Use the best available scientific information and procedures to assess the potential for accidental releases in quantities sufficient to adversely affect employees, community health or safety.
3. Institute programs as needed to protect employees and the community from such potential releases.
4. Vigorously support and implement the CMA Community Awareness and Emergency Response program, and the National Chemical Response and Information Center programs - CHEMTREC, CHEMNET, Emergency Response Training and Chemical Referral Center.

For process emissions:

1. Accelerate the development of an inventory of existing air toxics emissions.
2. Use the best available scientific information and procedures to assess the impact of these emissions on employees and the surrounding community and to determine the adequacy of control technology in place.
3. Move rapidly to reduce these emissions as needed to safeguard employees, public health and the environment.
4. Communicate the results of these actions to appropriate communities and government agencies.

To increase understanding of the health effects of both types of releases, member companies are encouraged to work actively with employees, customers and interested public and governmental groups to expand the base of knowledge on the health effects of air toxics.

CMA and its member companies will periodically reassess this program as additional scientific information and technological improvements become available.

January 28, 1986

DU PONT

E. I. DU PONT DE NEMOURS & COMPANY
WILMINGTON, DELAWARE 19898

EXECUTIVE VICE PRESIDENT

July 1, 1987

The Honorable George J. Mitchell
United States Senate
Washington, D.C. 20510

Dear Senator Mitchell:

As a follow up to my oral testimony on S. 1384 on June 19, I have asked our medical and epidemiology experts from Du Pont to prepare a summary of major existing studies that have evaluated the relationship between air pollution and diseases; it is attached.

I believe that the primary message from the studies quoted here is that there is no national health crisis resulting from stationary source emissions of toxic air materials. In response to questions during my oral testimony, I referred several times to an EPA report from which one can derive that .2% or less of U.S. cancer cases are the result of toxic air pollutants. In a separate report, EPA estimated that only 20-25% of these might be related to point sources associated with heavy industry. The particular data that I referred to are on pages 2 and 3 of this summary.

I would conclude from these studies that we certainly have ample time for thorough consideration of the proposals that are made in S. 1384 which modify in a very fundamental manner the thrust of Section 112 of the Clean Air Act.

I would like to emphasize again that the attached summary is of existing data on this subject and represents no new research or new findings on the part of Du Pont.

Kindest regards

R. C. Forney

Attach.
RCF:pt
cc: Members of the Environment
and Public Works Committee

SUMMARY:

INFLUENCE OF AIR POLLUTION ON HUMAN HEALTH

Epidemiology Section
Medical Division

W. E. Fayerweather
C. A. Burke
S. Pell
J. Walrath

June 30, 1987

Background

Most epidemiologic research that has addressed the relationship between cancer and air pollution has been descriptive in design, involving investigation of urban-rural differences in disease rates, evaluation of regional differences in disease rates related to differences in pollution levels, and comparison of disease rates in immigrants and nonimmigrants. Occupational studies have also been used to estimate the possible effects of pollutant exposure on the public, since exposures in the community may be qualitatively similar to those in the workplace. However, the occupational exposures generally are quantitatively orders of magnitude larger than those that occur in the ambient environment.

In general, the existing research is limited by problems in the precision of measurement, as well as the relevance of specific air pollutants in complex mixtures, the interrelationship of pollution levels with confounding variables such as socioeconomic status and age, the small number of events that have been related to localized pollution, inappropriate methods of data analysis, and lack of control of important confounding factors such as occupation, indoor air pollution, and smoking.

Cancer risk attributable to environmental factors

Noted researchers have estimated that there is minimal risk of cancer from exposure to current levels of industrial air pollutants.

"Considering the various estimates made over the last 25 years, it is likely that the effect of air pollution on lung cancer is something greater than zero; however, it is unlikely that the estimate exceeds 2% of all lung cancers or 5/100,000 cases in urban males. Thus, the effect on all cancers is likely to be less than 1% of all cases." (Speizer, 1983)

Sir Richard Doll and Richard Peto, cancer research experts at the University of Oxford in the United Kingdom, were commissioned by the Office of Technology Assessment to prepare a report on cancer risks from the environment. After a thorough review of the pertinent literature, Doll and Peto estimated the proportions of cancer that could be attributed to various environmental and personal factors. They concluded that two major factors, diet and tobacco, account for an estimated 35 and 30 percent, respectively, of all cancer deaths. Their estimate for pollution (in air, water, and food combined) was 2 percent (range: less than 1 percent to 5 percent). (Doll and Peto, 1981)

EPA's 1985 report "The Air Toxics Problem in the United States: an Analysis of Cancer Risks for Selected Pollutants" uses risk assessment to estimate the cancer incidence attributable to air pollution. This approach is hindered by the extensive assumptions which must be made, and can result in over- or under-estimation of risk. A major assumption includes the potency of the substance in question, which is often extrapolated from animal toxicity testing (usually very high doses), or from occupational exposures, to the level at which it is present in the air (usually parts per billion). Persons are assumed to have been exposed to a continuous level of pollutant (itself estimated, often from scanty or questionable data) for a period of 70 years. Nonetheless, EPA's upper bound estimate of 1700 cancers (this number varies depending on the data used in analysis) per year due to exposure to a group of 15-45 air toxics is lower than other risks faced by the population. Passive smoking is estimated to result in up to 5000 cancers, and indoor radon exposure in up to 20,000 cancers, annually. (These are EPA's figures.) In 1983, there were an estimated 850,000 cases of cancer diagnosed in cancers are not included in this estimate. Thus, using EPA's estimate, 0.2% of these incident cases of cancer may be the result of the specified toxic air pollutants. It is important to note that most of these cases were attributed to non-industrial sources. In its 1985 document "A Strategy to Reduce Risks to Public Health from Air Toxics", EPA states "...several years of experience has led us to conclude that the chemical industry is not the major source of our national air-toxics problem...we now estimate that point sources associated with heavy industry (of which chemical manufacture is but a small part) account for only 20-25% of cancer incidence from national air toxics. By comparison, over 50% of national incidence appears due to road vehicles (including gasoline vapors and diesel particulates) and heating sources (including fossil fuel burning, coke ovens, and wood stoves)."

The literature addressing air pollution and lung cancer risk was recently reviewed at a workshop of the Task Force on Environmental Cancer and Heart and Lung Disease. The experts evaluating the contribution of organic particulates to respiratory cancer risk concluded: "In summary, most recent reviews and information regarding the effects of organics and particulates from the outdoor environment on the risk of lung cancer have agreed that currently this source seems to play a minor role in the overall risk of the disease. Smoking is undoubtedly the major factor in the risk..." (Matanoski et al., 1986)

Urban-rural differences in cancer rates

Hammond and Garfinkel investigated the relative risk of lung cancer mortality in 6 areas categorized according to degree of urbanization and to whether or not the persons were "occupationally exposed". The areas ranged from rural areas to cities within metropolitan areas having a population of over 1 million persons.

They found no association between degree of urbanization and lung cancer mortality and concluded that air pollution "has very little effect, if any, on the lung cancer death rate". (Hammond and Garfinkel, 1980)

A report by Karch and Schneiderman (1981), commissioned by the Natural Resource Defense Council, purported to associate increased lung cancer in urban areas with exposure to air pollutants. Their report has been peer-reviewed and was extensively criticized as lacking scientific merit. The proportions of lung cancers attributable to smoking used by the authors are less than those estimated by other scientists, who attribute about 90% of lung cancer deaths in men and about 77% in women to smoking. By using their lower figures, Karch and Schneiderman inflated the estimates of lung cancers caused by air pollution. In their arguments, the authors relied upon unfounded manipulation of the data reported in the above study by Hammond and Garfinkel, and made extensive unsupported assumptions.

Data published by the National Cancer Institute (NCI) indicated that New Jersey had some of the highest cancer rates in the nation for the period 1950-1969. New Jersey is the second-largest chemical producing state in the nation. High cancer rates, high air pollution indices, and high population densities tended to coexist in the same geographic areas within New Jersey. Some environmentalists were quick to conclude that the high cancer rates were caused by exposure to industrial chemicals. Thus, New Jersey was nicknamed "Cancer Alley".

H. Demopoulos of the New York University Medical Center, and formerly the Director of the Cancer Center Institute of New Jersey, reviewed the NCI and other cancer statistics, and reported that "we have been unable to find any direct, positive correlations between the presence of heavy chemical/petroleum industry and the development of cancer." Demopoulos (1980) compared cancer rates in New Jersey with those from many other urban areas, and after taking urban density, socioeconomic status, age, sex, and race into account, he concluded that a) heavily industrialized regions are not associated with greater cancer rates when compared with low-industry regions with similar population densities, and b) urban density is probably a surrogate for the markedly different, and apparently more dangerous, life styles that are led by city dwellers in comparison with rural inhabitants. Goldsmith (1980), in agreement with Demopoulos, argues that certain consequences, which should be observed if community air pollution were an important causal factor in excess urban lung cancer, have not been demonstrated.

A report on New Jersey cancer rates by the American Council on Science and Health (1981) concluded that "state efforts to reduce the number of cases and deaths should seek to reduce such personal risks as cigarette smoking and excessive alcohol consumption without subjecting residents to unnecessary and expensive regulations."

In summary, researchers have provided evidence that lung cancer rates are not associated with air pollution estimated by population density (Hammond and Garfinkel) or industrialization (Demopoulos). Instead, life style and personal factors, such as differences in smoking habits, have been reported to be responsible for the higher rates among urban residents.

Inferences from studies of geographic patterns of cancer

In the mid 1970s, the National Cancer Institute produced two cancer atlases that mapped geographic variations in cancer death rates across the United States for 1950 through 1969 for the white and non-white populations.

For white men, the cancer atlases showed that some of the highest lung cancer death rates were along the Gulf Coast from Texas to the Florida panhandle, with the highest concentration in Louisiana. Death rates were also elevated along the Atlantic Coast, particularly from Virginia to northern Florida.

At first glance, some of these areas of high lung cancer mortality could appear to be associated with geographic areas of high population density and exposure to air pollution. However, epidemiologic studies initiated to investigate the observations made on lung cancer indicated that cigarette smoking (including passive smoking), diet, and occupational exposure to asbestos in the shipbuilding industry were associated with the increased lung cancer mortality. For example, preliminary findings from a study initiated in southern Louisiana indicated that smoking habits appear to be overwhelmingly responsible for the lung cancer excess in that area. Risk for lung cancer appeared to be particularly high among Cajuns who were heavy users of local brands and hand-rolled cigarettes containing high tar levels.

Cancer risks from air pollutants relative to other agents

A recent review by Bruce Ames states: "General outdoor air pollution appears to be a small risk relative to the pollution inhaled by a smoker; one must breathe Los Angeles smog for a year to inhale the same amount of burnt material that a smoker (two packs) inhales in a day, though air pollution is inhaled starting from birth. It is difficult to determine cancer risk from outdoor pollution since epidemiologists must accurately control for smoking and radon.

"Because of the large background of low-level carcinogenic and other hazards, and the high costs of regulation, priority setting is a critical first step. It is important not to divert society's attention away from the few really serious hazards, such as tobacco or saturated fat (for heart disease), by the pursuit of hundreds of minor or nonexistent hazards. Our knowledge is also more certain about the enormous toll of tobacco--about 350,000 deaths per year." (Ames et al., 1987)

Speizer has voiced similar concerns: "Almost all investigators would agree that over 90% of lung cancer in men is attributable to cigarette smoking. The figure is only slightly lower in females and, unfortunately, is increasing rapidly. Cigarette smoking also plays a major role for all other respiratory cancers. Thus, because of the overwhelming effect of cigarette smoking, population-based studies that report on environmental effects, particularly at relatively low levels of excess risk (relative risk greater than 1.0 but less than 2.0), and that do not attempt to take cigarette smoking into account, must be considered seriously flawed. These studies, therefore, can contribute very little to our understanding of risk factors for respiratory cancer." (Speizer, 1986)

Chronic respiratory disease other than cancer

The Surgeon General, in evaluating the potential contributions of air pollution and smoking to chronic respiratory disease concluded: "...if an increased risk of chronic obstructive lung disease due to air pollution exists, it is small compared to that due to cigarette smoking under conditions of air pollution to which the average person is exposed." (U.S. Dept. of Health, Education and Welfare, 1979)

Holland and others reviewed the evidence for a harmful effect of particulates on health, and concluded that air pollution levels 2 to 3 times U.S. air quality standards do not represent a hazard to public health. They argued that at currently regulated levels, "...the effects on health are difficult, if not impossible, to disentangle from the health effects of temperature or other weather factors." (Holland et al., 1979)

Conclusions of Du Pont's Corporate Medical Division

The Epidemiology Section of Du Pont's Corporate Medical Division concurs with noted researchers who have estimated that there is minimal risk of cancer and chronic obstructive lung disease from exposure to current levels of industrial air pollutants. Under conditions to which the average person is exposed, epidemiologic studies have not convincingly demonstrated an association between community exposure to air toxics and adverse health effects. Methodologic problems pertaining to exposure and disease indices, and inadequate control of confounding variables (such as cigarette smoking, indoor air pollution, occupation, and population density), have seriously limited the inferences that can be drawn from these studies.

Doll and Peto, Speizer, and EPA have estimated that air pollution is responsible for less than 2% of all cancers. The study by Karch and Schneiderman purporting to associate increased lung cancer in urban areas with exposure to air pollutants has been peer reviewed and was extensively criticized as lacking scientific merit. Researchers have provided evidence that lung cancer rates are not associated with air pollution estimated by population density (Hammond and Garfinkel) or industrialization (Demopoulos). Instead, life style and personal factors, such as differences in smoking habits, have been reported to be responsible for the higher rates among urban residents.

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Testimony of David D. Doniger
on behalf of the National Clean Air Coalition
before the
United States Senate Committee on Environment & Public Works
Subcommittee on Environmental Protection

June 19, 1987

Mr. Chairman and members of the Subcommittee, I am pleased to testify today for the dozens of member organizations of the National Clean Air Coalition on the serious public health and environmental hazards posed by toxic air pollution. We applaud Senator Durenberger and his co-sponsors for introducing S. 1384, the Toxic Air Pollution Control Act of 1987, a bill which makes major strides forward in the fight to safeguard the public and the environment from toxic air pollutants.

It is time to stop treating the atmosphere as the largest hazardous waste dump of them all. The air, in fact, is the route of greatest human exposure to toxic chemicals. People drink at most two liters of water per day, but they breathe 15,000-20,000 liters of air per day. You have some choice over the water you drink, but you have no choice over the air you breathe. Recent legislation for hazardous wastes, drinking water, and surface water pollution has markedly strengthened control of toxic pollutants in these media. It is past time to tighten the net on toxic pollutants in the air.

You will hear later this morning from people with stark and disturbing stories about toxic air pollution in their home towns. My purpose is to give a national overview of the serious hazards to public health and the environment from this pollution.

THE DIMENSIONS OF THE TOXIC AIR POLLUTION THREAT

Literally billions of pounds of toxic compounds are emitted without restriction into the air Americans breathe each year. They are released from hundreds of large factories, from thousands of smaller industrial and commercial facilities, and from millions of cars, trucks, and buses. Toxic emissions run a spectrum from daily, constant leakage during "routine" operations, to catastrophic releases in industrial accidents.

Toxic emissions take an annual toll of thousands of cases of cancer, acute illness, and chronic disease. Many of these pollutants can kill or injure immediately. Others cause death or serious illness after years of exposure to even low concentrations.

Virtually every American is exposed. Tens of millions of people live near chemical plants, oil refineries, smelters, coke ovens, and other major industrial sources of toxic pollutants. These facilities pose the greatest danger to the most exposed persons in surrounding neighborhoods. Well over 100 million people living in urbanized areas breathe a deadly "chemical soup" of known and suspected toxic chemicals, from which they are not protected by the six ambient air quality standards. And hundreds of miles downwind from pollution sources, a toxic rain contaminates major ecosystems like the Great Lakes, causing severe damage to fish and aquatic resources, and indirectly endangering public health.

A few examples bring home the sheer magnitude of toxic emissions from large industrial sources. In January 1985, Congressman Henry Waxman, Chairman of House Health and

Environment Subcommittee, asked 86 of the nation's largest chemical companies to submit information on amounts of toxic substances leaked or vented into the atmosphere from their facilities. Here are several companies' responses:

- Borg Warner reported emissions of more than 1.1 million pounds of the cancer-causing chemical acrylonitrile from its Woodmar Plant in Parkersburg, West Virginia, in 1984. American Cyanamid reported acrylonitrile emissions of 375,600 pounds per year from its plant in Santa Rosa, Florida. Dupont's May Plant in South Carolina emits 272,000 pounds per year of this chemical, according to company officials.
- Dow Chemical's Midland, Michigan, factory pumps millions of pounds of carcinogens into the air each year: 6,000 pounds of acrylonitrile, 76,000 pounds of benzene, 4,600,000 pounds of methylene chloride, 15,600 pounds of ethylene oxide, 102,000 pounds of perchloroethylene, and 1,600 pounds of vinyl chloride.
- Dow's Freeport, Texas, facility reported emissions of 680,000 pounds per year of chlorine, 73,800 pounds per year of perchloroethylene and 9,000 pounds per year of vinyl chloride.
- Other petrochemical facilities along the Gulf Coast are big polluters. Exxon Chemical Company's Baton Rouge, Louisiana, plant reported emitting 560,000 pounds per year of benzene in 1984. Diamond Shamrock's Deer Park, Texas, plant emits 220,000 pounds per year of carbon tetrachloride, 200,000 pounds per year of ethylene dichloride, 8,000 pounds per year of methylene chloride, 50,000 pounds per year of perchloroethylene, and 20,000 pounds per year of trichloroethylene.

A survey of industrial sources in New Jersey documented releases of more than 40 million pounds of stack emissions and more than five million pounds of fugitive emissions annually. Benzene and toluene were emitted in the greatest quantities, followed by methylene chloride, methyl chloride, and trichloroflurомethane. The survey reported large quantities of lead emissions from petroleum refineries, and almost 50,000 pounds of phosgene releases from chemical plants.[1]

According to a 1985 study by the Environmental Protection Agency,[2] just a small portion of the witches' brew -- some 15-45 chemicals -- are by themselves responsible for up to 1700 cancer cases in the U.S. each year. Chemicals singled out in the report include: asbestos, arsenic, chromium, products of incomplete combustion, formaldehyde, benzene, ethylene oxide, gasoline vapors, chloroform, carbon tetrachloride, perchloroethylene, and trichloroethylene. The report cited additional, unquantifiable risks of cancer from dozens of other compounds and mixtures released into the air, and from their byproducts formed in atmospheric chemical reactions.

In areas around major industrial sources, the cancer danger can be shockingly high. According to EPA, the most exposed persons living near underground uranium mines bear a chance of contracting fatal cancer from radionuclide emissions as high as one-in-ten, even after compliance with the EPA standard. More than 500 people living near steel facilities have a better than one-in-a-hundred chance of getting cancer as a result of coke oven emissions; 23,000 people have a better than one-in-a-thousand chance. The standard proposed in April (more than two years late) will cut the number of people so heavily exposed by just a little more than half.

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[1] New Jersey Department of Environmental Protection, Office of Science and Research, "New Jersey Industrial Survey: Final Report," Aug. 1986.

[2] EPA, "The Air Toxics Problem in the United States: An Analysis of Cancer Risks for Selected Pollutants" (May 1985).

The same story can be told for many other heavily industrialized areas which are home to large or multiple chemical plants: the Kanawha Valley in West Virginia; Richmond, California; the Geismar and Saint Gabriel communities in Southern Louisiana and other areas along the Gulf Coast; portions of northern New Jersey; and many other places as well.

Even in urban areas away from large industrial complexes, the chemical soup of toxic air pollutants also creates high cancer risks. The combination of emissions from industrial, commercial, and mobile sources creates lifetime cancer risks for millions of people that EPA has calculated to be higher than one-in-ten-thousand, and may be responsible for as much as three-quarters of total air pollution-related cancer cases.

Toxic air pollutants cause other serious chronic diseases:

- Lead causes severe neurological disorders, especially in children -- learning disabilities, behavioral problems, hyperactivity, reduced IQ, decreased school performance. Recent research has also demonstrated that lead causes dangerous high blood pressure conditions in adults.
- Mercury, inhaled as a vapor or ingested in its methylated form, is linked to a wide range of serious neurological disorders. Methyl mercury accumulates in fish and other species after being deposited in lakes and rivers via air and water pollution.
- Polychlorinated biphenyls and dioxins, are reproductive and immunological toxins as well as carcinogens.

Hundreds of acutely hazardous chemicals pose serious, even life-threatening dangers in accident situations. The most serious accident the world has ever seen occurred in Bhopal in 1984, and took more than 2500 lives and injured hundreds of thousands more. Some may think it can't happen here. But an EPA study[3] undertaken in the wake of that catastrophe documented 6,928 accidental air releases in the U.S. between 1980 and 1985, due to equipment "upsets," malfunctions, or operator mistakes: 138 people were killed, 4,717 injured, and more than 200,000 forced to evacuate their homes. Many of these accidents involved vapor releases, fires, or explosions. Still others involved spills of chemicals onto land or water which subsequently volatilized into the air.

Another analysis showed that the emergency rooms of 32 hospitals in northern New Jersey could be overwhelmed in the event of a credible potential accident in northern New Jersey.[4]

Toxic air pollutants are also contaminating the natural environment, killing and injuring aquatic life, and indirectly threatening human health. Like the pollutants that cause acid rain, "toxic fallout" can accumulate hundreds of miles from its sources:

- Atmospheric deposition is the major source of toxic pollution in the Great Lakes. Some contaminated fish are visibly diseased; others have been declared unfit for human consumption.[5]

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[3] EPA, "Acute Hazardous Events Data Base" (Dec. 1985).

[4] S. Markowitz, et al., "Ability of Health Care Facilities in Northern New Jersey to Respond to Major Chemical Accidents," Workers Policy Project (December 1985).

[5] Sierra Club, "Toxic Air Pollution in the Great Lakes Basin: A Call for Action" (March 1987).

- Hundreds of tons of polycyclic organic matter, pesticides, and toxic metals are deposited in the Great Lakes each year from air pollution.[6]

- Dioxins and dibenzofurans have been found in an isolated lake on an island in Lake Superior located hundreds of miles from any source. So has toxaphene, a pesticide used in the Northern Plains and the cotton-growing regions of the South. Atmosphere transport is the only possible route of these contaminants.[7]

- Abnormally high mercury levels in fish from lakes in northern Minnesota has been linked to mercury emissions from hazardous waste incinerators, coal-burning power plants and other sources.[8]

EPA'S RECORD OF FAILURE

I have cited many EPA studies to document the severity of these dangers. Unfortunately, I can cite little EPA action to combat these dangers. In 17 years the Agency has done extraordinarily little to protect the American people and their environment from toxic air pollutants.

Under Section 112 of the Clean Air Act, EPA has set highly compromised emission standards for just seven cancer-causing air pollutants -- and not even for all sources of these pollutants.

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[6] Eisenreich et al., "Airborne Organic Contaminants in the Great Lakes Ecosystem," Environmental Science and Technology, 15:35 (1981); Strachan & Huneault, "Polychlorinated Biphenyls and Organochlorine Pesticides in Great Lakes Precipitation," J. Great Lakes Res. 5(1):61 (1979); Doskey & Andren, "Concentrations of Airborne PCBs Over Lake Michigan," J. Great Lakes Res. 7(1):15 (1981); Seivering et al., "Trace Element Concentrations Over Midlake Michigan as a Function of Meteorology and Source Region," Atmospheric Environment, 14:39 (1980).

[7] Czuczwa, Jean M., McVeety, Bruce D., Hites, Ronald A., "Polychlorinated Dibenzo-p-dioxins and Dibenzofurans in Sediments from Siskiwit Lake, Isle Royale," Science Vol. 226 p. 568, Nov. 2, 1984.

[8] "Significant Amount of Mercury in Lakes Comes from Atmosphere, EPA Scientist Says," Environment Reporter, Dec. 12, 1984.

Except for compiling a list of 402 of the most acutely hazardous compounds, EPA has done nothing at all to lessen the danger of catastrophic accidents. Under Section 202, EPA has issued modest standards for only one motor vehicle pollutant beyond the three Congress controls itself -- diesel particulate emissions. Despite a mandate to test and regulate dangerous fuel constituents and additives under Section 211, the only major additive EPA has even partially regulated is lead, which is still in gasoline.

THE TOXIC AIR POLLUTANT CONTROL ACT OF 1987

S. 1384, along with the amendment subsequently introduced by Senator Durenberger, would comprehensively amend these provisions and give EPA specific responsibilities to curb the full spectrum of toxic air releases. I will address in order the four main areas covered by the bill.

Hazardous Air Pollutants

First, the bill's provisions for control of "hazardous air pollutants" -- the pollutants that can cause cancer and other serious diseases even at very low concentrations -- would rectify EPA's glaring violations of the existing Section 112. The 1970 Clean Air Act clearly established EPA's duty to set health standards for these pollutants. This health protection policy is explicit, as it is for the ambient standards as well, in the requirement that hazardous pollutant standards provide "an ample margin of safety to protect the public health." EPA has flatly ignored this directive and (when it has acted at all) substituted a crass policy of cost-benefit analysis, in which your life or mine is forfeit if costs to industry are deemed to be too high. When the subject is death and serious illness, the public rejects a government policy of cost-benefit analysis and "acceptable risk" which tolerates the random (and sometimes far from random) sacrifice of individuals for the sake of "progress." We have challenged this policy in the courts and believe we will prevail under the existing law. Naturally, however, we welcome this bill's provisions making the bar on cost-benefit analysis even more explicit.

The 1970 Act also required EPA to regulate pollutants promptly once the Agency concluded they were, in fact, "hazardous," i.e., once EPA knew they could cause cancer or other serious diseases. Yet EPA has stalled for years on regulating 11 known and probable human carcinogens emitted to the air in massive quantities. The Agency's latest dodge was to acknowledge these substances' carcinogenicity, but to consign them to a limbo category called "intent to list" or "intent to regulate." The bill eliminates this limbo category and requires EPA to set hazardous air pollutant standards for these 11 compounds on a specific schedule. To prevent further delays in reviewing additional substances, the bill provides an explicit process for assessment of and decisionmaking on candidate hazardous pollutants.

The bill also reverses the most galling proposition in EPA's "risk management" policy: The notion that only populations, not individuals, matter. EPA has been all too willing to leave groups of highly exposed individuals unprotected -- trapped in islands of risk -- on the grounds that "not enough" people are getting cancer overall. We reject a policy under which the protection an individual can expect depends on the number of people in the same boat with him. What kind of a government policy doles out life and death depending on population density? Again, we are challenging this policy in the courts and believe we will prevail under the existing law. This bill's reiteration of the importance of protecting of the most exposed individuals is nonetheless most welcome.

I add at this point our strong support for the bill's protection against environmental damage from hazardous air pollutants (as well as from toxic air pollutants which are discussed below). There is no mechanism in the existing law to remedy the serious problem of toxic fallout into the Great Lakes, for example. There is no reason why EPA should be required to ignore serious harm to other species, especially when -- as in the case of eating contaminated fish -- the pollutants can indirectly harm human health as well.

Toxic Air Pollutants

We strongly support the bill's provisions in the second area it covers: "toxic air pollutants." The bill requires EPA to set advanced technology-based standards for major sources of the more than 300 air pollutants on the list maintained under Section 313 of Emergency Planning and Community Right-to-Know Act of 1986. This provision supplements the coverage of the "hazardous air pollutants" provisions, which will regulate only a handful of substances, albeit more intensively. By itself, the pollutant-by-pollutant approach under the "hazardous" provisions will always be a slow process. In the meantime, the public is losing the large increment of protection that can come simply from applying known pollution control technology to major sources of a larger number of toxic pollutants.

There can be no question about whether the Section 313 substances deserve to be controlled. According to a recent analysis prepared for EPA:[9]

- 53% of the substances on the list are carcinogens,
- 52% are mutagenic,
- 44% are acutely toxic,
- 38% are chronically toxic,
- 16% are reproductive toxins,
- 16% are embryotoxic,
- 12% are teratogenic.

If there are any pollutants on the list which should not be, the bill allows for their removal, if appropriate showings about safety are made.

There is a group of critically important toxic pollutants that must be added to the Section 313 list: dioxin and other polycyclic organic matter (POM) compounds. POM compounds are considered probable human carcinogens by EPA, yet the Agency has regulated only some sources of them. Dioxin is a member of the POM family and is emitted from incinerators and other types of sources. The Subcommittee should be sure to add POM compounds, including dioxin, to the list mandated by statute.

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[9] ICF Inc., "Description and Analysis of the Selection Criteria for Chemicals on the New Jersey/Maryland Toxic Chemicals List" (Oct. 16, 1986).

The bill appropriately defines "best available control technology" for toxic air pollutants to go beyond just a focus on end-of-pipe pollution controls. Standards are also to include pollution reductions obtainable by making process changes or substituting alternative materials, and by enclosing systems or processes to contain leaks. The need to look beyond just "add-on" treatment devices is acknowledged even by industry representatives, who understand that the most effective and efficient pollution reductions often come from process changes. The bill's definition brings basic concepts of source reduction which have been included in other recent legislation into the Clean Air Act as well.

We are quite concerned, however, about the proposed 10-year schedule for issuing these standards. The schedule should be shortened to no more than five years. Setting technology-based standards for categories of industrial sources is not all that complicated. It can be simplified even further by grouping the Section 313 chemicals, as the bill directs, into appropriate classes with similar pollution control properties. With few of the source categories is EPA starting from scratch; it has 17 years to familiarize itself with most of the processes and emission control measures involved.

The bill also contains new provisions to control emissions of the toxic air pollutants from so-called "area sources" -- the industrial and commercial sources smaller than the major ones, plus mobile sources, which together cause the toxic "chemical soup" present in the air of most urbanized areas. The bill requires EPA to accomplish, within 10 years, a net reduction of 55% in the 1988 levels of total emissions of these substances from all such sources. It gives EPA considerable flexibility to allocate the reductions among particular types of sources as appropriate, and to use different legislative tools in so doing. Some may claim a 55% reduction is too ambitious. We believe, however, that substantially more reductions -- perhaps 90% -- are feasible in this time frame. Most of these types of sources have yet to feel their first federal air pollution control requirements; major reductions should come with relative ease and low expense.

Extremely Hazardous Air Pollutants

The bill's third area of coverage is the prevention of catastrophic industrial accidents. There is still the danger of a Bhopal in the United States. The occurrence of smaller accidents is, as I have already reported, a daily phenomenon which has killed more than a hundred people and injured thousands more in this decade. Yet despite some pious talk, EPA has done virtually nothing to improve industrial practices for handling and using extremely hazardous materials, beyond issuing the list of 402 acutely hazardous substances. EPA's June 1985 policy statement on accident hazards "emphasizes preparing the public to protect itself" and consists of mere exhortation for emergency response planning by state and local governments. Emergency response planning is important; done properly as required under last year's Superfund amendments, it facilitates informed responses by fire departments and emergency medical services after a release has already occurred. At worst, however, it amounts to little more than telling people to head for the hills.

S. 1384 establishes a four-pronged program to prevent accidental releases of extremely hazardous substances. First, it requires facilities handling the 402 acutely toxic chemicals and other extremely hazardous substances to undertake hazard assessments and annual safety audits. These self-examinations will more systematically identify potential accident scenarios and weak points where dangerous conditions can be corrected. The assessments will be available to EPA, the states, local emergency planning authorities and the public.

Second, the bill establishes an independent Chemical Safety and Hazards Investigation Board within EPA to inspect facilities where accidents have occurred and recommend measures to prevent recurrences.

Third, and most importantly, the bill directs EPA to establish release detection, prevention and correction requirements. This is the heart of a preventive approach to accidental releases. EPA, the World Bank, and chemical engineering experts have documented hundreds of technical and management steps that can minimize the likelihood of accidental releases. These measures include reducing on-site inventories of extremely hazardous substances, "fail-safing" systems by using dual temperature and pressure gauges, and venting pressure relief discharges to control devices rather than straight into the atmosphere.

Just one anecdote will show how much can be done with measures of this kind. In 1985, DuPont announced a new process for the manufacture and use of methyl isocyanate ("MIC"), the chemical which killed more than 2500 people in Bhopal, India, last December. MIC now can be continuously manufactured and converted into pesticides in a single closed system. There is no longer any need to make huge batches of the chemical at one plant, store them, and ship them to other plants for conversion to pesticides; there need never be more than two pounds of the substance present in the system. In a plant using this process, another Bhopal will be impossible.[10]

But in the absence of uniform regulatory requirements, industries have an economic disincentive to adopt available measures. This bill solves that problem.

Fourth, the bill provides additional incentives to minimize releases by establishing a monetary penalty of not less than $5 per pound of extremely hazardous substances released to the air. This penalty requirement will go a long way to give firms concrete marketplace incentives to institute necessary controls.

Mobile Sources

The fourth major focus of this legislation, contained in

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[10] Washington Post, June 8, 1985, p. D-1. (The company spokesman said: "With our new process . . . the product is manufactured in a continuous, 'close-coupled' system that produces MIC and consumes it immediately. There is never more than two pounds of methyl isocyanate present in the system.")

Senator Durenberger's amendment, is on mobile source emissions of toxic chemicals. We strongly support these provisions.

At the heart of toxic air pollutant control must be strong standards for gasoline and diesel vehicles, and to control gasoline vapor emissions into the atmosphere. While these provisions do not appear in this legislation itself, they are already contained, for additional reasons, in the nonattainment and acid rain bills. We strongly support their enactment.

We also strongly endorse the provisions for fuel additives. EPA was obliged to issue regulations for manufacturers to test fuel additives in 1978, but still has not done so. It is time to set a date certain for having them tested or removed from the market.

The bill also responds to the dangerous increase in the blending of the toxic compounds benzene, toluene, and xylenes (BTX) into gasoline as a short-cut means of increasing octane. Since the lead phase-down took hold, BTX levels in gasoline have approximately doubled. These compounds exist in gasoline naturally and so cannot be completely removed. But on the other hand, it is not appropriate to allow unrestricted blending of added BTX into gasoline. The bill would gradually roll back BTX levels over five years to their low point over the previous ten years.

Finally, the legislation requires EPA to establish standards for formaldehyde emissions from alternative-fueled vehicles. We do not believe this provision discourages the necessary shift away from gasoline in order to meet the ozone standard in polluted areas. It is meant to assure, however, that alternative-fueled vehicles do not create a new pollution problem.

Recommended Changes

As I have said, the National Clean Air Coalition strongly supports S. 1384 and the Durenberger amendment to it. There are, however, some important changes and additions that we strongly urge the Subcommittee to adopt.

Deadlines. First, as I have already mentioned, the deadlines for EPA to set the toxic air pollutant standards are far too long. The public should not have to wait 15 more years (ten years for the issuance of standards, five more for compliance) until basic technology to curb toxic air releases is in place. The ten year deadline for issuing the last standards should be reduced to five years, and the interim dates should be reduced accordingly.

The same is true for the deadlines under the hazardous air pollutant section. We agree that the present law's one year schedule for issuing standards is ambitious. But three years to issue standards, coming after two or more years in the pollutant assessment phase, is too long.

Dioxin and other polycyclic organic matter compounds. As I noted before, the Section 313 list lacks an extremely important group of toxic air pollutants: polycyclic organic matter compounds, including dioxin. The Subcommittee should add this group of compounds to the list of toxic air pollutants for which major source BACT standards and area source pollution reduction requirements must be set.

Carcinogenic solvent phase-out. The bill should include phased reductions in the use of cancer-causing solvents, with an objective of eventually totally replacing them. Certain cancer-causing solvents are emitted in million -- even billion -- pound quantities each year. The subcommittee should amend the bill to establish an objective of no emissions of carcinogenic or otherwise chronically toxic solvents. EPA should be required to review each category of use of such solvents on a schedule, and to mandate product substitution within one year wherever safe alternatives are currently available.

Where safe alternatives are not currently available, EPA should be required to establish a production and use phase-down schedule. As the phase-down proceeds, industry will have incentives to conserve and recycle these substances rather than release them into the air, and to develop substitute, safer products. A model for this provision is the phase-down of chlorofluorocarbons supported both by the EPA and many members of this committee.

Shared Responsibility for "User" Emissions. Many sources (e.g., those that use solvents and coatings, distribute gasoline, or apply pesticides) emit very large toxic pollutant quantities in the aggregate, mostly from evaporation of solvents or other product constituents. Public health damage from these emissions should be counted as a cost of doing business for producers and distributors. The bill should give producers and distributors of such substances defined responsibilities (1) to assure that the sources they supply install control technology required under the area source provisions and (2) to periodically audit the operation and maintenance of such controls. A producer or distributor which fails to do so should be deemed responsible, with the user source, for any violations of standards.

Incinerators. Municipal waste incinerators are the fastest growing category of major industrial sources. More than 170 are under construction or on the drawing boards. They emit a slew of toxic chemicals ranging from dioxins to heavy metals. The Coalition supports strong health- and technology-based standards for incinerators, plus the institution of incentives and requirements for waste reduction (e.g., recycling), which is the way out of the Hobson's choice of landfills or incinerators.

We understand that a separate bill is being prepared to control emissions from incinerators. We look forward to working with the Subcommittee on strong incinerator provisions.

Uses of Risk Assessment. I have saved for last our most troubling concern. We have already explained our deep objections to EPA's unconscionable disregard for the danger to the most exposed individuals. The bill constructively answers by focusing EPA exclusively on danger to the most exposed. Nonetheless, we have severe reservations about any legitimation of a "negligible" risk test in the Clean Air Act -- even if "negligible" is defined as smaller than one-chance-in-a-million.

The moral consequences of accepting chemically-induced cancer risks, parcelled out in the population by a giant wheel of fortune, are staggering. Aside from those issues, it is highly questionable whether quantitative risk assessment techniques are scientifically sound enough to guarantee that danger is really below some "negligible" level. The most articulate spokesman for "risk management," former Administrator William Ruckelshaus, once conceded that you wouldn't try to put a man into orbit on the strength of these equations. I don't understand, then, why such equations are any more suitable for life or death decisions down here on the ground.

The hazardous air pollutant provisions of the bill buffer the reliance on risk assessments with three additional requirements beyond the focus on the most exposed: An existing source seeking an exemption from a health-based standard for a carcinogen or other no-threshold substance must show (1) that it would suffer extraordinary economic hardship meeting the health standard, and (2) that it will use "best available control technology." Only then does the "negligible" risk test kick in: The remaining risk to the most exposed persons must be "negligible." The concept, then, cannot be used to avoid what is feasible and affordable. The third buffer is that the exemption must end in no more than 10 years (or when the source is fully depreciated, if sooner), and that thereafter the source must meet the health standard like any new one.

Under this structure, risk assessments can lead to controls better than those currently deemed available, but they cannot serve as the excuse for going without available controls.

The focus on the most exposed persons, plus the three requirements of severe economic hardship, BACT minimum controls, and a 10 year maximum life to the exemption, are essential provisions of this bill, but they still do not quiet our concerns about the "negligible" risk test.

* * *

The threat to public health and the environment from toxic air pollution is very serious and demands the attention of Congress. The National Clean Air Coalition urges the Subcommittee to adopt S. 1384 and the Durenberger amendment, together with the additions and changes we have suggested above. I will be happy to answer any questions you may have.

SIERRA
CLUB
330 Pennsylvania Avenue, S.E., Washington, D.C. 20003 (202) 547-1141

STATEMENT OF

DARRYL MALEK-WILEY, DELTA CHAPTER, CHAIR

ON S. 1384

BEFORE THE

SUBCOMITTEE ON ENVIRONMENTAL POLLUTION

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

U. S. SENATE

WASHINGTON, D. C.

JUNE 19, 1987

"When we try to pick out anything by itself, we find it hitched to everything else in the universe." *John Muir*

Senator Mitchell, and members of the Committee, I thank you for allowing me to testify today on this important bill to control air toxics, S. 1384.

Louisiana desperately needs strong federal action to control emissions of air toxics. The state of Louisiana has 147 chemical plants which account for 25% of the United States production of chemicals. These chemical plants mostly have been built after the Second World War. Some are among the largest in the nation.

The idea that there might be a problem with airborne toxics around chemical plants was first documented by a 1979 EPA report of the Baton Rouge--Geismar area which identified the presence of several carcinogens in the ambient community air. Known carcinogens found in the air included: vinyl choride, carbon tetrachloride, benzene and trichoroethylene. Supected carcinogens detected were chloroform, tetrachloroethylene, 1,1-2 trichloroethane, 1,1-2 trichloroethylene, and vinylidene chloride. Eugene Sawicki,an EPA chemist, stated in regard to the report,

"You almost don't need test animals in a way. We have ... plenty of people breathing in these chemicals in Baton Rouge area. All we have to do is keep an eye on them and keep good statistics. It's human experimentation going on...all we can do right now is collect statistics from our human guinea pigs so to speak, then wait and see."

We in Louisiana are tired of playing the guinea pigs for the rest of the Nation, and I am sad to say Louisiana has been keeping lousy statistics,so please stop the experiment!

In October 1986, the Delta Chapter researched for the first time the amount of permitted air releases in the Geismar-- St. Gabriel area which contains 18 chemical plants. The state Department of Environmental Quality had never added up the numbers. What we found was shocking. These plants are permitted to release 196,649,274 pounds of pollutants each year. Of this total, 24% or 82,635,743 pounds were carcinogens or bacterial mutagens. The data is now just being compiled in a study of the area just across the Mississippi River from the first study area. We looked at 8 plants and found the following permitted discharges totaling 184,606,000 pounds. Of this total, 13.5% or 13,666,000 pounds are carcinogens. The total routine discharge each year of air carcinogens that are reported in this 20 square mile area is 96,291,743 pounds. I note that these two studies only looked at 23 of the states 147 chemical plants. The amount of air toxics permitted for annual discharge with from all plants in Louisiana may reach billions of pounds. Unfortunately, we can not properly account for the significant amount of emissions attributable to non-routine accidents and spills at these plants.

All of this air toxics discharge is having an effect on the local area. I have attached to my testimony the statements of two residents of this area and their comments on the health problems which they are seeing. In addition, a local pharmacist has noticed an abnormally high rate of still births and miscarriages among women living in the St. Gabriel. His chart shows 15 women of child-bearing age experienced a total of 16 miscarriages and still births (with only one live birth recorded) over a three year period. Finally, Louisinans must continue to live with the knwoledge that Louisiana has the higest death rate from cancer in the United States.

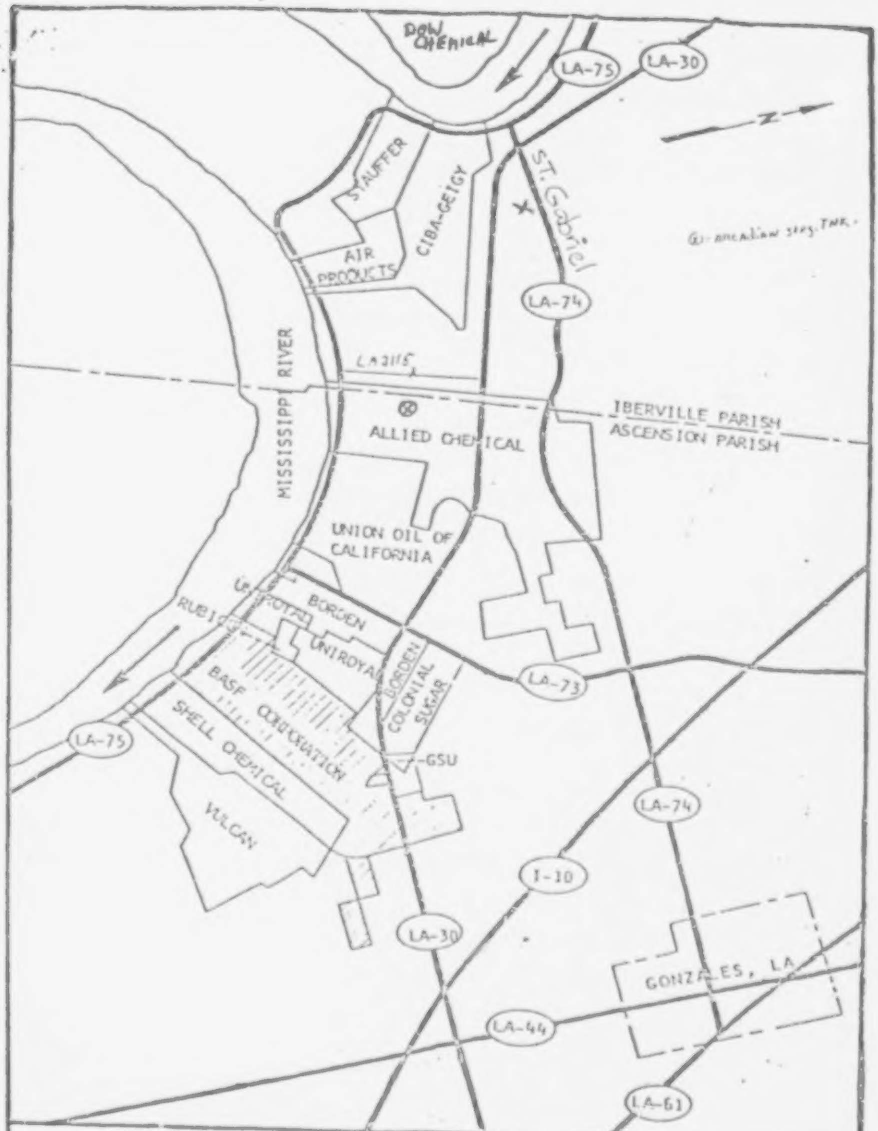
With all these facts and data one might ask why Louisiana has not enacted it's own air toxics laws. The answer quite frankly is that Louisiana is unwilling to place its industry at a competitive disavantage by regulating air toxics beyond those specified in section 112 of the Clean Air Act. Therfore, strong federal standards are needed to ensure all industries reduce their emissions in a similar fashion.

While we strongly support S. 1384, I would like to address a few provisions that need to strengthened. Under S. 1384, EPA has three (3) years to issue standards for the newly listed hazardous air pollutants after a two (2) year assessment period. No standards would be issued for over five (5) years. We have already waited too long for regulation of these toxic chemicals. The issuance of these regulations must be as soon as possissable but in no case more than two (2) years after listing. Also, EPA has ten(10) years to issue standards for industries generating toxic air pollutants. This is too long. We have been waiting since the orginal Clean Air Act passed. The EPA should have only five(5) years to issue standards for major sources ans a added two(2) years for the smaller sources. With both of these schedules there needs to be an action forcing provision to ensure timely action by EPA. I would recommend that in cases where EPA fails to issue standards on time, the bill should require an automatic phase out of all emissions of carcinogens and a substantial reduction of emissions of threshold pollutants.

Another area of concern is the provision that would allow EPA to exempt chemical plants from the health-based standards for hazardous air pollutants under "hardship" conditions. When the EPA is investigating arequest by a company they must be required to take into account the location of the plant and the possible effects of the increased emissions along with the emissions of other chemical plants in the same location.

I would like to leave you with a short story to emphasize the serious nature of the toxic air pollution problem in Louisiana. Mr. Amos Favorite of Giesmar told me of his recent problem. Visualize if you can Mr. Favorite purchasing aluminum screens for his windows. The saleperson told him they would last 10 or 15 years. Well maybe here in Washington, D.C. but not in Giesmar,LA. The screens that last for years here have lasted 6 months in Giesmar. The chemicals in the air are so powerful and plentful that in only 6 months his screens have degraded to dust. Senators if the chemical can do that to Mr. Favorite's screens, just think what it is doing to the resident's lungs and health.

Thank you for your time, and please stop the air toxics experiment on the citizens of Louisiana.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GEISMAR, LOUISIANA - INDUSTRY LOCATION

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ASCENSION PARISH RESIDENTS AGAINST TOXIC POLLUTION
President - Amos Favorite
Vice - President - Robert Washington, Sr.
Secretary - Mary Jackson

STATEMENT OF AMOS FAVORITE
SPOKESPERSON FOR
ASCENSION PARISH RESIDENTS AGAINST TOXIC POLLUTION
OCTOBER 21, 1986
AT THE STATE CAPITOL
BATON ROUGE, LOUISIANA

I have been living in the Geismar, Carville and Saint Gabriel area for 62 years. I am not a doctor of Medicine, nor a Scientist, but I am also not a fool to see the things that are taking place in our society. The trees in our area look strange and out of place without the beauty of Spanish Moss hanging from their limbs. But Spanish Moss is no more in the area.

The Pecan Trees bear their nuts with beautiful shells, but only a few of them have anything in them. Some people have had to refrain from using aluminum screens in their windows because the life of the screens is only 6-8 weeks. The water has a foul odor that stains the bathtub and other fixtures when it drips on them.

Our population is suffering from an unknown factor around us, which is causing the Cancer rate to mount. In the Carville and Saint Gabriel area combined there are 7 women and 13 men dead from Cancer. In Geismar there are 5 women and 3 men dead from Cancer. In the Geismar area there are also 4 women and 3 men presently being treated for Cancer. Two of the men being treated are only 17 years of age. One of the men that died from Cancer in this area was only 23 years of age.

I have seen Garden vegetables wither up and die over night. Trees in the Geismar area are also dying from an unknown cause.

We are here today to ask anyone who is in a position to help us rectify this grave problem. It's a dreadful thing to have the shadow of death from Cancer hanging over our lives.

BASF, one of the chemical companies, is now asking DEQ for permission to burn chemical wastes near to our homes. We have heard that they intend to bring toxic waste from other places to burn here in Geismar. We want to be sure that their incinerator won't add to our problems.

Post Office Box 458, Geismar, Louisiana 70734, (504) 673-6939

We have a system here in Louisiana where the Petrochemical Industry police their own pollution and report their own Emissions into the atmosphere. They also report on their own injection of chemical waste through our Water System. There are many injection wells in the Geismar area that are injecting chemicals into the ground 24 hours a day.

We asked and inquired to some Public Officials about testing our well water. Borden Chemical of Geismar, Louisiana (one of the polluters) voluntarily checked 2 wells, and reported back to D.E.Q. that they found nothing in the water. I do not think it is fair that these people should be allowed to check their own doings. That's like putting a fox in the chicken house and telling him not to eat the chicken.

We need an independent lab to check our water periodically and make their report to the citizens in the community. We do not have an Alarm system to warn us of a dangerous Emission. We were told by a scientist that a tank car of a chemical, such as chlorine, will travel 2 miles in 10 minutes. We would not have time to leave our residence for safety.

We need a water system built in this area, and a warning system established--at the expense of the Chemical Industries in our area.

-30-

TESTIMONY ON REAUTHORIZATION OF THE
CLEAN AIR ACT

presented by

ESLA BYNOE-ANDRIOLO, NEW JERSEY ENVIRONMENTAL FEDERATION

before the

SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

JUNE 19, 1987

NJ Environmental Federation
46 Bayard St. - Suite 309
New Brunswick, N.J. 08901

Mr. Chairman and Members of the Committee, my name is Esla Bynoe Andriolo. I am here today representing the New Jersey Environmental Federation, a grassroots coalition of 30 community, environmental and labor groups representing well over 100,000 New Jerseyans. The Federation has a diverse membership including the Cape May Court House Neighborhood Association, the Jersey Shore chapter of the National Audubon Society, and the United Auto Workers, to name a few. In addition, the Federation has more than 10,000 individual members.

I am also the chairperson of the Jersey City Environmental Commission which is currently engaged in a massive fight to clean up enormous quantities of chromium wastes dumped by careless corporations at many locations throughout the city. In addition, I am the chairperson of the PJP Landfill Task Force, which led the fight to extinguish a fire at this landfill which had been burning for more than 20 years and spewing toxic fumes into our community.

Living near this Superfund toxic waste site taught me how important it is for citizens to get together and take action on toxic pollution problems affecting our communities. I also learned citizens cannot do the job alone. We need strong laws at the national level and we need our public officials to make sure that the laws are aggressively enforced.

I was very active in the battle to strengthen the Superfund. I would like to take this opportunity to commend the Senate Environment and Public Works Committee for the work you did to make sure that we have a strong toxic waste clean-up program.

In particular, I would like to commend our Senator from New Jersey, Frank Lautenberg, for your outstanding leadership in the fight for a strong Superfund. Time and time again, when the chips were down and the bill was stalled, Senator Lautenberg, you stood up for the citizens of New Jersey and the country to keep the momentum going for this important legislation -- all in the face of massive opposition from the powerful polluters, the Reagan Administration, and others who sought to weaken the bill.

Now we face a similar battle -- _the fight against toxic air pollution; the fight for clean air._ New Jersey certainly has its share of air pollution problems:

* Millions of pounds of toxic chemicals discharged into the air each year can cause cancer, birth defects and other diseases.

* A 1983 study conducted by the state revealed that 22 chemicals known or suspected of causing cancer are common components of New Jersey's urban air. Most of these toxic air emissions go unregulated.

* New Jersey has experienced more than 150 chemical accidents in the past 5 years. These accidents have caused

deaths, injuries, hospitalizations, massive evacuations, fishkills, and economic damages. So-called accidental releases of toxic air pollutants appear to be the norm rather than the exception.

* The New York metropolitan area, which includes Jersey City and other New Jersey communities exceeds the ozone standard an average of 31 days a year.

* Jersey City, Newark, Trenton, Atlantic City, and the Bergen / Passaic area all violate health standards for either ozone or carbon monoxide.

Clearly, there is a need to take action to curb the massive amounts of toxic pollution discharged into the air each day. The Senate Environment and Public Works Committee has the opportunity to stop this onslaught of toxics into the air we breathe.

The Environmental Federation commends the Committee for addressing the important problems of air toxics. We feel the bill should include the following:

* We would like to see an end to the release of all cancer causing chemicals into the air; we know there are no safe levels for these chemicals.

* We don't want to see any plants closed, but the industries must show that they are doing everything possible to prevent the release of these carcinogens--even if it means modernizing equipment and changing processes.

* If the company can show that it can't afford to do this, there should be financial assistance available from the government.

* We should make sure that industries employ toxic use reduction and waste reduction approaches to reduce the discharge of toxics into the air without increasing the discharge of toxics to the land or water.

* We must make sure that facilities with air permits are inspected regularly; this will take full funding for EPA and state agencies.

* We need strong enforcement with large fines and jail sentences for executives/firms that are repeat violators; the punishment must fit the crime.

Finally we are alarmed at the number of proposals for garbage incinerators in New Jersey--one for each county. Our air is already polluted and unhealthy--we need to clean the air, not add more lead, dioxin and other dangerous emissions. We know that there are better ways to manage our garbage--burning and landfills should be choices of last resort after waste reduction and recycling are used to the maximum extent possible. We hope you will introduce a bill that will not only require standards and permits for incinerators--but that will mandate reduction and recycling as the preferred option.

Thank you for the opportunity to testify today.

ENVIRONMENTAL POLICY INSTITUTE

STATEMENT OF FRED MILLAR, Ph.D.
DIRECTOR, TOXIC CHEMICALS SAFETY AND HEALTH PROJECT
ENVIRONMENTAL POLICY INSTITUTE

BEFORE THE

ENVIRONMENTAL POLLUTION SUBCOMMITTEE
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
JUNE 19, 1987

Mr. Chairman and Members of the Subcommitee:

I appreciate the opportunity to testify before the subcommittee today on "major hazard" chemical accident problems and prevention, and on the parts of the proposed chemical safety legislation, S. 1384, dealing with "extremely hazardous air pollutants." The Environmental Policy Institute (EPI) is a national environmental organization specializing in energy, water, toxics, and agriculture issues. EPI is a non-profit public interest organization engaged in research, public education, litigation and lobbying. We have worked since 1979 in issues involving hazardous chemicals in transportation and fixed facilities.

"Major hazard" chemicals and processes are those involving the production, transportation and storage of ultrahazardous materials that can cause death and injury off-site in case of accidental release by toxic clouds, fire or explosion. Currently in the U.S. these "major hazards" are virtually unregulated by any level of government; the chemical industry is self-policing and, as on-going accidents have shown, far too complacent.

The chemical disasters in Bhopal and in Mexico City in late 1984 have underscored a basic public policy need: to increase the ability of federal, state and local governments to assess and reduce the risks of major hazard chemicals. Some of the European nations are ahead of the U.S. in such regulation, after major accidents in Flixborough, England (1974) and Seveso, Italy (1976) prompted the European Community Parliament to issue the 1982 "Seveso Directive" that directs each nation to enact regulations on chemical safety, focusing on thorough hazard assessments and prevention of accidents.

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We have visited safety regulators in England and Holland in order to learn from them and to bring information to policymakers at the federal, state and local levels in the U.S. We also have learned much from Dr. Roger Batstone at the World Bank, whose regulatory program on major hazards is based on the British system, and from several industry and U.S. agency safety experts.

The basic features of the 1982 Seveso Directive are:

o A general duty placed on member nations to adopt regulations to ensure that industrial firms take measures to prevent major accidents and to limit their environmental and public health consequences.

o A general duty is placed on chemical companies to prove to appropriate government officials that they have identified major hazards, adopted appropriate safety measures, and provided employees on site with information, training, and equipment needed to ensure their safety.

o Companies must notify government authorities if their activity involves any of a list of dangerous substances, and include information on the substances, the facilities, and possible major accident hazards, including on-site emergency plans (first information was submitted January 1985).

o Member nations must appoint authorities to receive and examine the information from the companies, and draw up an off-site emergency plan.

o The authorities must make sure that the companies take the most appropriate measures to prevent accidents and to limit their consequences, and they must organize inspections.

o Governments must make available to persons likely to be affected by an accident information on safety measures and on emergency response measures, and make the same information available to other nations.

o If a major accident occurs, the company must notify the authorities and provide information on the accident. The government must then notify the European Commission for dissemination of information on accidents and potential hazards to other nations.

o There are provisions for trade secrets.

The European nations' regulations should not be seen as any drastic shift of responsibility and liability away from private companies to the governments. As the United Kingdom's "Guide to the Control of Industrial Major Accident Hazards Regulations, 1984" states:

> "An underlying principle of the Advisory Committee on Major Hazards's thinking has been that, as in the Health and Safety at Work Act 1974, the primary responsibility for controlling and minimising the risks should lie with those who create those risks. In areas of high hazard, however, it has not been considered sufficient for employers merely to demonstrate to themselves that all is well. It is necessary that they should be able to demonstrate to the community's agents, primarily the Health and Safety Executive, that their plants are properly designed, well constructed and safety operated. Further, because the risks extend beyond the immediate vicinity of the workplace, it is proper that there should be control on the location of major hazards and any developments in their vicinity."

The UK regulations have a two-tiered system for general hazards and the most dangerous hazards, and storage of hazardous substances is treated separately from process hazards. The Health and Safety Executive maintains a Major Hazards Assessment Unit which is competent to evaluate major hazards and give advice to local planning authorities about proposed development of residences or businesses near existing chemical facilities.

The post-Seveso European system is in its infancy, but it appears to be working. It does not provide a perfect model for what can be accomplished in the United States, but a persuasive case can be made that similar strong, accident prevention-oriented national legislation is needed here.

I. The case is based first on evidence showing an urgent need to improve chemical safety:

o Accidents: We have seen a long series of "worst-case accidents" in the last three years: Bhopal, where at least 2500 died in the Union Carbide toxic gas cloud release in a densely populated area; Mexico City, where over 500 died in when propane spilled into residences from a government-operated propane storage facility and exploded; Chernobyl, where the whole radioactive inventory of a major nuclear power plant was thrown out into the air over Europe; the Shuttle Challenger disaster, which has crippled the astronaut space program. Continuing serious accidents in the U.S. have raised the concerns of many people, especially those who live near chemical facilities, that chemical risks are not being managed well.

Even now chemical company complacency is a problem. A year after Bhopal, American Cyanamid's ten-year-old pesticides plant on the Arthur Kill waterway separating New Jersey and New York City's

Staten Island, within sight of the skyscrapers of Manhattan, suffered a runaway reaction which released thousands of gallons of malathion gas in a twenty mile plume. Lack of adequate alarms, lack of temperature monitoring, and lack of hazard analysis was explained by the plant manager to the Wall Street Journal (11/11/85): "It would be fair to say we were complacent."

Congressman Henry Waxman (D-CA) revealed in January 1985 that before the 1984 Bhopal accident, Union Carbide had done an internal safety audit (successfully denied to an subsequently embarrassed EPA team that had asked for such documents) that showed that a Bhopal-like runaway reaction accident could have occurred at Union Carbide's similar facility at Institute, West Virginia. Carbide found "no concerns of an imminent nature".

Serious releases continued after Bhopal even in the fishbowl situation at Union Carbide's similar plant at Institute, West Virginia, including one that sent six workers and 129 local residents to hospital emergency rooms. And no warning was sounded before ten shoppers were floored at a nearby mall by a leak of mesityl oxide and acetone from Union Carbide's South Charleston plant. Two weeks previously, Carbide chairman Warren Anderson had told company employees that a Bhopal-type release was "inconceivable". Two days passed before the company knew -- or publicly acknowledged -- that it was their leak. To its credit, the company had reportedly advised against the siting of the mall near its plant, but the advice had been ignored.

In April 1986, Federal OSHA hit Carbide with a (proposed) $1.38 million penalty for 221 safety and health violations and a "willful disregard for health and safety". OSHA said Carbide was "customarily" using workers as canaries, requiring them to use their "sense of smell" to determine leaks of phosgene, "an extremely deadly gas," and failed to record dozens of accidents between 1983-1985.

The seemingly strong OSHA action masks the reality that OSHA and EPA are not at all able to regulate chemical safety or prevent major hazard accidents. Neither agency has any significant staff resources for chemical plant inspections, although the few they have --very quietly-- done have revealed some serious safety problems at major hazard chemical facilities.

o Research: Beyond the testimony of ongoing chemical accidents, a relatively small number of knowledgeable industry experts have recently been startled by the findings of joint industry-federal toxic cloud dispersion research efforts which show much higher levels of hazard from potential toxic chemical releases than previously expected. Regrettably, the test results have in some important cases been left unanalyzed; as with the DIERS findings to be discussed below, no one has the overall responsibility of setting priorities for further research on the most dangerous chemicals, or disseminating the findings to companies and governments, or overseeing company implementation of new safety measures seen as crucial because of the unexpected results of the tests.

Originally mandated by Congress in 1977 to study threats to the public safety from the accidental release of liquefied natural gas (LNG), the DOE research program at Lawrence Livermore National Laboratory (LLNL) uses the brand-new Liquified Gaseous Fuels Spill Test Facility at the Nevada Test Site. There researchers from industry and several government agencies have also spilled large quantities of other very hazardous materials such as nitrogen tetraoxide, ammonia, and hydrogen fluoride. Testing the downwind dispersion at the tabletop-flat desert site, the researchers have found that some kinds of toxic gas clouds **are ten to one hundred times more dangerous** than previously predicted by toxic cloud dispersion models.

These tests suggest that world-wide chemical and oil companies operating and still building facilities near populations have been not well informed about what enormous harm such Bhopal-like gas clouds can do if released into surrounding communities. They also mean that those concerned about emergency response, e.g., giving advice about necessary evacuation distances in case of serious hazardous materials accidents from facilities or in transportation, have also been ill-informed and have not grasped the full potential of such accidents.

Another significant industry chemical safety research program, The Design Institute for Emergency Relief Systems (DIERS) research, funded by 29 companies at $1.6 million over a 10-year period, has shown that it is likely that the industry's emergency relief systems, many of which have been based on assumptions of all-gas release, are "most likely grossly undersized," in the words of one of the principal researchers, Dr. Ian Swift, and better "two-phase flow" valve design techniques "have not been widely disseminated". Many, perhaps most existing systems are therefore too small by a factor of five to nineteen.

Who will make sure that the DIERS findings are widely disseminated and that the chemical companies with the most urgent needs to improve their accident prevention systems by using the more adequate design technology will "bring it down from the shelf"? The Wall Street Journal quoted Ian Swift: "What chemical companies do about safety problems always lags behind what they know they can do."11/11/85 Many conversations with federal and state officials reveal that only a handful of public officials have even heard of what amounts virtually to insider knowledge from the DIERS research. No one at any level of industry or government actually has the job of assessing overall the priority threats posed to specific chemical communities o

from "grossly undersized" emergency relief systems, much less for implementing needed improvements. If any chemical industry people are doing so on a national level, they are keeping quiet about it (probably from liability concerns) Meanwhile, the federal major hazards research sector seems destined to languish.

o Inspections: Federal and state governments have been conducting (only) a handful of quiet inspections of major hazard chemical facilities. The results show that even such limited oversight work can contribute to safety improvements. The inspections have turned up some very unsafe practices, even in major companies, and some real industry "dogs"(unsafe plants) have been found.

For example,in 1986 a federal inspection, prompted by a fatal release from a transport vehicle which was overfilled, uncovered a liquid fluorine storage tank with 10,000 gallon capacity and with no cutoff valve. In case of an accident, the whole tank would empty, producing an unstoppable fluorine fire that burns concrete and produces a toxic HF cloud. The manager of this NRC-regulated facility first denied such a dangerous situation could exist -- when taken in tow to the spot, he reacted by ordering the needed valve to be installed overnight.

Massachusetts and EPA officials inspected an Olin Chemicals plant in Wilmington, MA which had had lots of spill problems in January 1986. This was not a "mom and pop" firm, but one of the Fortune 500 companies, and the plant was making hydrazine, a potent rocket fuel. The inspectors later reported: "We told them you can't operate in the U.S. like this! Our inspection took five minutes, because there was no safety equipment to inspect, they were doing it in buckets." The company was ordered to install needed equipment and do a full-blown probabilistic risk assessment, to prove an awareness of the hazards of the operation.

New Jersey state officials, after 16 releases in two months, got fed up with American Cyanimid plant and Dupont and forced them to do risk assessments which were, according to state official Don Deieso, "quite revealing... We found things as fundamental as a storage vessel converted to a reactor vessel --the cause of a very large release. Without the benefit of cooling coils, without temperature or pressure monitoring, it was used for an exothermic reaction. A runaway reaction popped the cork, we had a release...Another facility had an open vessel holding a highly water reactive chemical right below the water sprinkler system! We also found improper training, outdated operating procedures..." NJ State regulators, implementing their brand new "Toxic Chemical Prevention Act," the first in the nation, say they are learning to "grade chemical plants on a curve."

Local officials in the South Coast Air Quality Management District in the Los Angeles area did post-Bhopal, on-site audits of 19 chemical companies and found serious problems involving lack of dikes for storage tanks, lack of adequate backup systems and the "distinct possibility" of death from toxic emissions within a two-mile radius from some chemical facilities and transportation corridors.

II. A second argument for an expanded federal presence is that the current private sector structures that might have in the past been relied on to ensure chemical safety can no longer do so. The current reliance on private company liability for adequate safety practices is supposed to work to "ratchet up" the worst companies to higher standards. This reliance on liability concerns of companies has not often enough been sufficient for serious improvements in safety, mainly because of the monopoly of knowledge that the companies have maintained up to now in key technical areas: hazard assessment and prevention technology. Even toxic tort lawyers have a hard time finding out the state-of-the-art in a given chemical technology, and a harder time proving when the companies should have known to adopt higher safety standards.

The companies handling major hazard chemicals cannot have it both ways: having a total lack of government regulation, because the industry claims to be constrained by its liability to be safe, and also maintaining a pervasive secrecy of vital hazard information that too often defeats the liability structures. The public sector can no longer afford the luxury of the state of pervasive ignorance in which it has heretofore been kept regarding major hazard chemicals.

The major companies in the U.S. chemical industry were quick to proclaim publicly that several major gains in risk reduction were made in the year after Bhopal. It is important to ask why such risk reductions were not thought necessary earlier, and to ensure that all U.S. companies, large and small, be "ratcheted up" to the state of the art in safety practice in timely fashion, not only when disasters provide sufficient motivation. "It should not have taken a Bhopal", as the president of the Chemical Manufacturers Association admitted in 1986, for the industry to implement simple and available safety measures.

Some chemical engineers maintain that U.S. chemical companies have affiliates or parent companies in Europe that routinely comply with stricter safety standards there than they are asked to observe in the U.S., e.g., in diking of ammonia storage tanks. There is currently no federal capability to compare European with American safety standards.

In the U.S., the professional safety structure of the chemical industry has fallen into obvious disarray. This, in turn, is the product of several factors. Among them are these:

o Intense legal pressures. Liability courts have held that the safety practices of a single company - even in the chemical industry - may be considered evidence of that ought to be done by other companies. In response, most chemical company lawyers have embargoed public discussion of accidents, preventing companies from sharing information. Thus, for example, the cause of a $111 million refinery tank-farm fire in 1981 has yet to be disclosed.

A prominent chemical safety expert at the 1986 annual meeting of the American Institute of Chemical Engineers chastised his colleagues for withholding accident case histories previously offered for discussion by their peers: "I assume your liability lawyers have told you to shut up. It is a dangerous trend in our industry." The main chemical industry trade association, the Manufacturing Chemists Association, used to publish safety guides and standards and (sanitized) accident case histories (Loss Prevention Bulletin), but in 1979 on the advice of liability lawyers turned into the public relations-cum-lobbying incarnation, now called the Chemical Manufacturers Association, and cut off the safety work.

o Complacency with outmoded risk-analysis methods and a lack of consensus on acceptable levels of hazard. According to a Monsanto author's study published in an academic journal, Management Science, in April 1984,, chemical companies make only "limited applications of risk-assessment techniques...Expertise and risk assessment of chemical plants is limited to a few consulting firms and chemical companies."

o Lack of industrywide agreement on several basic safety standards and on essential methods of risk reduction. Existing national codes - for example, the National Fire Protection Association codes - are voluntary, incomplete and minimal. Companies handling the same dangerous chemical are free to use varying levels of safety.

o Lack of outside oversight. The insurance industry is not adequately assessing risks, much less asserting sufficient pressure to prevent serious accidents. On the contrary, the industry has badly miscalculated risks in recent years and paid out huge settlements in major chemical accidents. As a result, premiums have been raised dramatically and coverage canceled for some companies handling ultra-hazardous chemicals.

All of this has contributed to a widespread loss of confidence in the industry's ability to assess the risk of ultra-hazardous chemicals, to learn essential safety lessons from past accidents and to implement state-of-the-art, risk-reduction technology in a timely fashion. That, in turn, is by necessity drawing government at all levels into the business of regulating the chemical industry (until recently considered "safe" and allowed to set its own safety standards).

There are numerous reasons for the rising potential of Bhopal-scale chemical accidents, not all of them the "fault" of the industry. Zoning laws, for example, are often so lax that dense residential housing and shopping centers have been build within danger zones for toxic cloud releases and explosions. Some chemical company executives have recently expressed a new sense of quiet urgency about a widespread local problem in chemical safety: "The condos are coming," they say with concern. What worries many of them is that around scores of existing chemical facilities in the U.S., rapid development is going on of shopping centers, apartments and homes which are encroaching much too close to dangerous chemical processes or storage tanks which could release huge quantities of Bhopal-like toxic chemicals or which could cause Mexico City-like explosions.

As these managers will say in private conversations: "We are concerned that people are moving too close to our plants, but what can we do? It puts us in a very delicate political situation when we tell some developers that their property is worthless because our plant is too dammed dangerous! The developers just laugh and tell us to make our plant safer. If we go to the city council and tell them publicly that we are too unsafe, and that the land nearby must not be re-zoned for residences or shopping centers, lots of people will get worried about out facility." When one chemical company in California went public with such information, they were in fact sued by the developers, for de-valuing their property.

In the U.S. local planning boards have enormous discretion to allow development near chemical facilities, and often fire chiefs with no chemical engineering training are the only ones called upon to check off on local planning proposals as far as the chemical safety aspects are involved. As a result, many fire chiefs are increasingly uneasy with the facilities they designated as their "target hazards" for hazardous materials, including those close to populated areas that handle chlorine, ammonia, propane, and other bad actors.

Unlike the British situation, with its national government Major Hazards Assessment Unit, in the U.S. there are no state or federal agencies which can offer regulations or even authoritative advice on major hazard chemical safety questions, for example, about needed buffer zones around dangerous chemical facilities (except for the U.S. Department of Transportation regulations of LNG facilities and pipelines), or about needed scrubbers, monitors or alarms for toxic gas releases.

III. A third argument for a federal program is that the recent important regulatory efforts by states and localities are inadequate to do the whole job of improving chemical safety on their own; they need to be supplemented, but not supplanted, by a strong federal program. Only part of the chemical safety job, mostly the information-gathering part, is done by the dozens of existing state and local Right-To-Know laws. A few states have already enacted more prevention-oriented major hazard chemical safety laws, but too recently to see how effective they will be. In some major chemical states, notably Illinois, industry compliance even with a weak chemical safety law has been reported at ten percent.

The U.S. chemical industry still appears mostly intent on trying to "head off at the pass" new federal,state or local regulations. New state "toxic catastrophe prevention" laws in New Jersey and California, however, are likely to be models for other states and cities: they allow local and state authorities to assess major hazard chemical facilities and mandate new accident prevention measures. Enacted as the next ("right-to-prevent") stage after dozens of state and local worker and community right-to-know laws, they support the observation of former U.S. Environmental Protection Agency Administrator William Ruckleshaus in a 1985 article:

> "The argument over whether to involve the public in risk-management decisions in this country is now history...[Right-To-Know laws were passed because] the citizen demanded to be heard, to participate, to be part of the decision-making process, and he has been heeded by the Congress. The question for this country is no longer *whether,* but *how.* If it is a given in America that we are going to involve our citizens in risk-management decisions, how do we do it so as to enhance the quality of the process and the decision itself?"

Many citizens are ready to move beyond right-to-know, and assert a new "right-to-act": New Jersey's and California's tougher state laws, closer to the European regulatory pattern, are only in the beginning phases of implementation. Federal resources are essential in working out a partnership with non-federal regulators similar to that envisaged by the 1974 Hazardous Materials Transportation Act.

IV. Fourth, the new federal Superfund Amendments and Reauthorization Act of 1986 (SARA), though very valuable, is only a beginning effort to respond to the lessons of Bhopal and other accidents. SARA will bring into clearer focus the crucial needs for "community hazard assessment" regarding accidental releases, and for analysis of health risks of continuing ("routine") releases, and for prevention efforts on both fronts, but federal help is needed in crucial ways if the SARA process is to bear any fruit.

Most citizens have been living in blissful ignorance of the real hazards of the major hazards nearby. The state and local SARA participants will need help in assessing the information garnered (e.g., assessing the likely health effects of the chemical exposures that can be calculated from the Section 313 information on routine releases). They will also need help in using the SARA information to reduce risks.

The unique SARA process calls for a big cultural shift in the relationship between chemical communities and their major chemical company employers. Under SARA, citizens and local officials are asked to serve on unpaid volunteer committees for hazard assessment preparatory to emergency planning, and are told they will have access by home computer to an EPA database to be created on routine emissions from chemical plants. These "shirt-sleeved chemical engineers" will need encouragement that the SARA-provided information will be effective when gathered at great effort. They also need concrete resources which are currently unavailable at the federal level or anywhere in the public sector, such as information on: major historical chemical accidents, hazard assessment methodologies, "state-of-the-art" risk reduction measures and where employed, safer substitute chemicals, laws and standards in various states and other countries.

As SARA plays out, if it works as intended, there will be a new dialogue on in many American communities on "acceptable risk". The resources of the federal government should be available to help all sides of this dialogue, with concrete resources and with general legitimation and encouragement that public sector oversight can be effective in reducing risks. What would be unfortunate is if the federal posture were mainly one of promoting the currently fashionable kind of one-way "risk communication" (i.e., companies and government to concerned citizens) that is mostly public relations: reassurance without substance, fostering a dangerous complacency.

Post-Bhopal developments in the U.S. can illustrate how minimal is public sector input in current risk management decisions. One day before Bhopal, Union Carbide regularly transported MIC to five different user facilities in the U.S., including the FMC facility at Middleport N.Y. where before Bhopal the toxic cloud from an MIC release was drawn in by the ventilation system of the school only 100 yards away and sent 200 pupils to the fire station to have their eyes washed out.

One year after Bhopal, MIC was no longer transported at all. All the companies suddenly implemented safer ways to make their products. FMC Corporation says it reduced MIC transportation risks by moving its New York facility into the "Chemical Valley", the Kanawha River Valley of West Virginia, to a new site right next to the Carbide facility at Institute, presumably an increase in risk for that meteorologically-unfavorable area. Union Carbide says it reduced risks in the Kanawha Valley (and chemical transportation risks) by building a new acrolein plant in Taft, LA. Maybe these were good decisions. But does anyone think the citizens of West Virginia or Louisiana were genuinely consulted about company decisions to build still more dangerous facilities in their communities? And who is responsible for deciding if the overall public safety is lessened or increased when companies decide abruptly to move chemical production around the "Monopoly" playing board like this -- to other states or even to Third World nations? No one. No federal or state or local government agency is minding the store on chemical hazards.

The baseline of citizens' right to know what risks they are exposed to in the ambient air they breathe is currently pegged very low. In a 1986 visit to the major chemical centers near Houston, for example, one finds that the residents of Freeport, next to the ten-mile long Dow facility on the Gulf of Mexico, with its 69 chemical units reportedly the largest chemical complex in the world, are served by exactly one air monitoring unit. And that one was not operating in 1986 because the Texas Air Control Board has the budget to operate it only every other year.

The current baseline is similarly low as far as the right to know about major hazard risks. After Bhopal, the major chemical company response was to do a lot of "communicating" with communities and to beef up emergency response planning -- teaching people how to "run for the hills." The Dow facility at Freeport, for example, put a full-page ad in the local newspaper showing the location of ten new warning sirens for use in case of a dangerous release. When asked how the siren locations were chosen, Dow officials said that first the most dangerous chemical inventories were plotted (Map A) and then a hazard assessment was done that showed the toxic plumes into the community that could be caused by serious releases of these chemicals (Map B), then the sirens were located in the neighborhoods at risk (Map C). When asked how the community reacted to Maps A and B, the Dow response: "Well, we never showed them those maps, of course." In fact, most chemical company towns have never known up to now exactly what to ask for.

One comes away thinking that citizens in Texas chemical communities are living in a pre-democratic "banana republic". Only, this is true all over the U.S. In the Kanawha Valley of West Virginia, as in the chemically-intensive Houston Ship Channel area, most areas most at risk from chemical accidents do not even have the political authority to tax the nearby facilities, much less regulate them. The giant chemical companies instead make annual payments in lieu of taxes to the nearby unincorporated communities: Dupont gives $75,000 to Belle, WV; Monsanto is part of a consortium of plants that gave $170,000 to Nitro, WV; the multinational Rhone-Poulenc company which bought the Union Carbide MIC plant gives $100,000 to a non-profit civic improvement group in Institute WV. For obvious reasons, chemical companies have opposed the legal incorporation of the communities near their facilities -- in South Charleston, WV, Union Carbide reportedly pays a lot more in taxes.

The economic and life-threat risks are not equally shared. In the Kanawha Valley, as in other chemical areas, residents feel trapped and have a difficult time finding buyers for their homes if they have decided to move. One irreverent and resourceful journalist for the Charleston Gazette drove past the homes of the chemical managers with an altimeter in her car, beginning at the river level (and plant level) of 598 feet above sea level. She found the home of an FMC Corporation manager at 990 feet, a DuPont executive's at 965 feet, and the Union Carbide managers' homes at 1,020 feet, 1,070 feet and 1,275 feet. A wag might conclude that some folks have already run for the hills.

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Comment on the major hazard provisions of S. 1384: As might be inferred from the foregoing discussion, we are very supportive of the provisions of the proposed legislation, S. 1384. A public sector capability to set a regulatory floor in chemical-safety practices is long overdue. To reestablish acceptable standards will require at least two major types of public sector oversight. The first is a lean and expert Federal watchdog agency similar to the National Transportation Safety Board. Like the safety board, it must be independent of existing agencies and staffed with experts to investigate all serious chemical accidents and to recommend safety improvements to companies, trade groups, state governments and Federal agencies. Such a board is crucial both to insure an adequate flow of information and to publicize the latest risk-reduction technologies.

Second, rather than exhorting people only to plan how to "run for the hills", regulatory agencies at all levels must begin to enact strong preventive regulations. In many cases, as the companies have asserted after Bhopal, the worst accidents can be rendered impossible, for example, by reductions in storage volumes. In other cases, their probability or consequences can be reduced by using "robust" and fail-safe safety measures. Public officials must be able to assure themselves that state-of-the-art risk assessment, risk reduction technologies and operating practices will be implemented in huge plants, storage tank farms and hazardous materials trucks and railcars along major transport corridors. The most dangerous facilities must whenever possible be zoned and located outside cities, and populations not allowed to encroach upon existing facilities.

With virtually no government oversight in such a key area of industrial life as major hazard chemicals, the danger is that, as Professor Robert Engler has suggested, chemical companies are being rewarded "not for taking risks but for shifting them." The social costs of major hazard chemicals, as with other chemical (e.g., pesticides) production, "has been transferred beyond corporate fences, beyond national boundaries, beyond the lifetime of executives and stockholders. What economists call externalities are now other people's pain." That pain can be heard in the voices of those who live in the shadow of huge chemical storage tanks, sometimes literally only twenty-five feet from their homes, as in the Kanawha Valley of Charleston, West Virginia and in other chemical intensive areas of the United States.

TESTIMONY

SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE HEARING ON TOXIC AIR POLLUTANTS

June 19, 1987

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As a nation we have been reasonably successful in dealing with those air contaminants originally identified as primary air quality pollutants under the Clean Air Act. In general, our process of setting ambient standards and developing implementation plans based upon measured ambient air pollutant levels has rolled back the potential for serious adverse health effects or at least prevented further deterioration in air quality. We have been less successful in addressing those other air contaminants grouped under the heading Toxic Air Pollutants. This is despite a significant mandate to decrease human exposure to these pollutants. The reasons for this failure include some lack of will on the part of the regulatory agency, some lack of clarity in the writing and interpretation of the Clean Air Act, and, to a very large extent, uncertainty as to whether or not release of such compounds in usual amounts actually is responsible for adverse health effects.

It is quite clear that the overall EPA record in response to Section 112 of the Clean Air Act has not been brilliant. However, I can assure you that when I entered the Agency in 1983 as Assistant Administrator for Research and Development it was made very clear to me that this was among the Agency's highest priorities. A specific management tracking system kept close tabs on all of the pieces of paper and multiple steps that went into making of a Toxic Air Pollutant decision. The importance to Administrator Ruckelshaus and Deputy Administrator Alm of this particular effort was evident by the amount of finger pointing that went on as the various organizational components within EPA blamed each other for any delays. However, beyond the usual reasons for bureaucratic inertia, there still remained in my view two major causes for the slowness in response. In the Office of Research and Development, which was responsible for the health and environmental assessment of the individual compounds, a major problem was that for many of these compounds we were faced with a database that did not permit very firm statements as to the extent of human health effects. Scientific principles can and do allow extrapolation of the potential for harm to the levels of these pollutants present in ambient air, and for certain compounds, such as asbestos, one could be firm about the obvious threat. However, we were, and still are unable to give the type of unqualified statement concerning the extent of health risk which the regulators genuinely wish to hear in order to guide their decisionmaking. There is far less of a knowledge base for the pollutants dealt with under Section 112 than there is for the primary air quality pollutants. A second major inhibitory factor to efficient regulatory decisionmaking in this area during the time that I was at the Agency were the continual debates as to what it was that Congress actually intended under Section 112. Clarification of language in the Clean Air Act would undoubtedly go a long way towards speeding up the regulatory response.

There are many interesting aspects to the proposed revision of the Clean Air Act which could improve public health by decreasing exposure to toxic air pollutants. In my judgment, the use of Best Available Control Technology can bring many benefits. However, it has the drawback of not forcing technology when such forcing functions can lead to better control technology. Accordingly, I would strongly urge that the Agency be required to revisit its decisions on Best Available Control Technology, perhaps every five years. Parenthetically, the revisiting of the primary air quality pollutants under the Clean Air Act has proved to be a very effective spur for increased understanding and more effective regulation of these pollutants. Wherever possible, this should be extended to hazardous air pollutants and to other environmental chemicals regulated by the federal government.

A need to focus on accidental release must be a cornerstone of our preventive approach to the threat of chemicals. However, I would suggest that we need to carefully define what is meant by an accident and in what context any regulation will be placed. Recently, I had the experience of watching public officials completely misunderstand the basis for EPA's current guidelines, leading to an inappropriate order to close down a factory and throw people out of work. There is a major difference between an accidental release for which the worst case scenario is less than once in a lifetime and the type of accidental release which can be predicted to occur on perhaps a once a week basis. The latter is really part of the operating conditions at a plant and one should not confuse an accident with predictable operating upsets. From the public health point of view, a variety of margin of safety considerations, such as bioaccumulation, repetitive effects, and sensitization simply need not be considered in situations where the exposure will not occur more than once in a lifetime. I believe that the best approach for the potential of a rare accidental release is to focus on the worst case scenario within the control of the industrial plant, and not to compound the issue by making further worst case scenarios among the population. For example, assume that all of a given chemical is released at once from its container within the plant and that every potential scrubber or other safety device performs at its worst; but do not assume that this highly rare event will occur not only on the worst possible day from a meteorological standpoint, but that it will occur at a time when there is an individual with significant chronic lung disease who will be exercising at the fenceline. A realistic approach to potential human health effects coupled with a worst-case approach to the release of the chemical should squarely put the focus on what can be done to decrease the likelihood of a release rather than being dependent upon modifying human behavior, or on unworkable evacuation plans.

The idea of approaching potential hazardous air pollutants by categories is an intriguing one. It may be a very effective way to decrease total exposure. However, I would caution the committee that similar chemicals do not always have similar adverse effects. For example, if one looks at benzene and the related alkylbenzenes such as toluene and xylene, all of which are present in gasoline and petrochemical sources, there is a marked similarity of effect in producing an anesthetic-like central nervous system toxicity. One can readily predict the extent to which each one of these will cause such toxicity based upon its structural similarity to the others. However, only benzene produces leukemia; none of the other alkylbenzenes seem to have any hematological effect whatsoever and are not known to be human carcinogens. One must carefully consider the extent to which appropriate regulation for benzene may be inappropriately stringent for toluene and xylene, and vice versa.

In summary, a further focus on Toxic Air Pollutants is required. We need to move more rapidly to obtain the basic information necessary for appropriate regulation of these hazardous chemicals.

tsevpw6-

AUDUBON SOCIETY
of
FARGO-MOORHEAD

Testimony of
John Brophy, Co-Chairman for Conservation
Fargo-Moorhead Audubon Society
702 South Drive
Fargo, ND 58103

Before: Subcommittee on Environmental Protection
Senate Committee on Environment and Public Works

Regarding: Toxics section of the Clean Air Act

June 19, 1987

Brophy, National Audubon Society, Page 1

Mr. Chairman, members of the subcommittee, thank you for this opportunity to testify.

The Fargo-Moorhead Audubon Society, a member organization of the North Dakota Clean Air Coalition, has a long history of interest in maintaining the high quality of air for which the northern Great Plains is noted. We have been active at national, state and local levels in that task.

We feel that it is clearly time for strong federal action on clean air and we are particularly concerned that all airborne toxic substances be properly recognized and ultimately controlled. One substance that has given considerable trouble in North Dakota is the highly toxic gas, hydrogen sulfide (H_2S). Yet to our knowledge, this gas is not on the list of airborne toxic pollutants to be regulated under the National Clean Air Act.

Hydrogen sulfide problems in our state are a byproduct of petroleum production, wherein H_2S is released to the atmosphere. The least severe result is a terrible "rotten eggs" stench noticeable for miles around. Far more serious is the potential of H_2S to damage crops and other vegetation and to cause injury or death to animals, including humans. In North Dakota, there are documented cases in which H_2S has killed cattle and led to evacuation and even to hospitalization of people. Furthermore, H_2S problems are not limited to North Dakota, but occur wherever there are oilfields producing "sour crude."

We are aware too that the National Park Service has expressed concern about H_2S in relation to flaring near Theodore Roosevelt National Park. Pollution of the air of that area would have a severely detrimental effect on the entire park ecosystem as well as on the public use and enjoyment of the park.

Because current regulations fail to deal adequately with H_2S, and because the problem is a widespread national one, we ask that H_2S be added to the list of regulated toxic airborne pollutants.

Thank you again for this opportunity to express our concerns.

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of
FARGO-MOORHEAD

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Thank you again for this opportunity to express our concerns.

One New York Plaza • New York, N.Y. 10004
(212) 612-5710

Samuel Goldberg
President

July 23, 1987

Honorable George J. Mitchell
Chairman, Subcommittee on
 Environmental Protection
Committee on Environment and
 Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

This statement is being submitted on behalf of Inco United States Inc. for the record of the Senate Subcommittee on Environmental Protection in connection with its hearings on toxic air pollution legislation. Inco United States Inc. is the U.S. affiliate of Inco Limited, a Canadian corporation with facilities in Connecticut, Indiana, Kentucky, New Jersey, New York, North Carolina, Pennsylvania and West Virginia.

A number of witnesses have expressed strong reservations about a variety of provisions in the toxic air pollutant control legislation introduced by Senator Durenberger. Inco shares many of those reservations. In this brief statement, however, we would like to focus on the approach that the bill takes to identifying "toxic air pollutants" and "extremely hazardous air pollutants," because it illustrates two trends that cause us great concern:

INCO UNITED STATES, INC.

(1) The tendency of Congress and regulatory agencies to exacerbate a problem that we refer to as the "Tyranny of Lists." Often, lists prepared for one purpose are picked up and, without any further consideration, used for quite different purposes. Compounding this error is the fact that some of the chemicals were erroneously included in the first list and so do not belong on either list.

(2) A readiness on the part of Congress, as well as federal and state agencies, to impose regulatory requirements on allegedly "toxic" chemicals without considering any evidence of toxicity.

Inco has had experience with both of these tendencies. And unfortunately, both are reflected in the approach taken in the Durenberger bill to identifying "extremely hazardous air pollutants" and "toxic air pollutants."

Under the bill, EPA is to list as "extremely hazardous air pollutants" those substances which may "be released as air pollutants in concentrations that may reasonably be anticipated to cause acute toxic effects in humans." This list is to be drawn from the list of "extremely hazardous substances" that EPA is required to issue pursuant to Section 302 of the Emergency Planning and Community Right-to-Know Act of 1986 ("EPCRA"). This approach to identifying "extremely hazardous air pollutants" might be reasonable if Congress had evaluated the chemicals listed under Section 302 of EPCRA and if all those chemicals were, in fact, acutely toxic. But, Congress never evaluated the toxicity of the chemicals that are listed as "extremely hazardous substances" under Section 302 of EPCRA. Instead, it simply designated as "extremely hazardous" a list of chemicals that had earlier been prepared by EPA.

That list, the so-called Community Emergency Preparedness Program ("CEPP") list, was published in November 1985 by EPA without any prior opportunity for public comment. Not surprisingly, it turned out that a significant number of CEPP listings were erroneous -- i.e., the chemicals listed do not meet the EPA criteria for acute toxicity. As EPA subsequently acknowledged in Federal Register notice of November 17, 1986 (pp. 41593-41594), 40 of the substances appearing on the CEPP list cannot properly be considered acutely toxic. That is largely because corrections to the toxicity database show that the original listing was erroneous.

Nickel was one of the chemicals that was mistakenly included on the CEPP list. We discovered that the mistake resulted from EPA's uncritical reliance on toxicity data originally published by the National Institute for Occupational Safety and Health in its Registry of Toxic Effects of Chemical Substances ("RTECS"). In March 1986, Inco brought to the attention of both EPA and the editors of RTECS the fact that the data for metallic nickel had been interpreted incorrectly and that nickel should not be deemed to be acutely hazardous.

Both EPA and the editors of RTECS have now acknowledged the error. But the damage was done, since Congress enacted the CEPP list (including nickel) into law under Section 302 of EPCRA. Moreover, to add insult to injury, when EPA proposed to correct the EPCRA Section 302 list by deleting nickel and the other substances that erroneously had been included on the CEPP list, strong protests were raised by certain members of Congress, and the Agency backed off. Now, Senator Durenberger's bill would compound the initial set of mistakes by directing that a list of "extremely hazardous air pollutants" be drawn from the list of "extremely hazardous substances" under Section 302 of EPCRA. Thus, the Tyranny of Lists threatens to continue.

The definition of "toxic air pollutant" in the proposed legislation also illustrates the Tyranny of Lists and the readiness of Congress to impose regulatory obligations on the basis of presumed toxicity without examining the actual toxicity data. Thus, the bill provides that any substance that is listed as a "toxic chemical" under Section 313 of EPCRA automatically is deemed to be a "toxic air pollutant" if it is emitted into the air. The proponents of the bill have not examined any of the toxicity data related to the substances that are listed under Section 313 of EPCRA. Moreover, Congress did not examine any of that toxicity data at the time it enacted EPCRA. Instead, it simply incorporated into EPCRA two lists of chemicals that had been prepared by the States of Maryland and New Jersey.

Indeed, Congress did not even bother editing those lists -- with the result that a number of overlapping listings were picked up in the legislation (e.g., the listings of "Nickel Compounds" and "Nickel and Compounds").

In short, there is an insidious Tyranny of Lists which seems to dictate that, once a substance is identified as toxic on one list (even though erroneously), it is likely to be included on other lists without any evaluation being made of the actual toxicity data. And there appears to be no way to get off the treadmill.

Toxicity databases often are very complex and require sophisticated scientific evaluation. Congress, quite frankly, does not have the expertise to make such an evaluation. It should not, therefore, draw conclusions regarding toxicity. Instead, Congress should establish criteria for agencies, such as EPA, to apply in deciding whether a substance should be listed as "toxic" or "hazardous."

Nickel and its compounds are good examples of chemicals having an extensive and complicated toxicity database that must be reviewed and evaluated by experts. In fact, just such an evaluation of nickel and nickel compounds has been undertaken, and it is continuing. EPA conducted an exhaustive review and evaluation of epidemiological studies, toxicological data, and related information on the toxicity of nickel. That effort culminated in the publication, in September 1986 of a Health Assessment Document for Nickel and Nickel Compounds.

That document, which was peer reviewed by EPA's Science Advisory Board, concluded that: (1) there is substantial evidence that nickel refinery dust from pyrometallurgical operations, nickel subsulfide and, less definitely, nickel carbonyl are human carcinogens; (2) ambient exposure to any of these substances is minimal; and (3) the carcinogenic potential of other nickel compounds has not been established and "remains an important area for further investigation." (Inco is participating, along with other nickel producers, in just such an investigation that is being conducted under the sponsorship of EPA, the Ontario Ministry of Labour, Canada's National Health and Welfare Ministry, and the Commission of European Communities, with the distinguished British epidemiologist, Sir Richard Doll, as chairman.)

Relying on the Nickel Health Assessment Document, EPA decided against regulating nickel as nickel compounds under the Clean Air Act at the present time. Congress, which has not purported to examine any of the toxicity data, is hardly in a position to second-guess EPA's scientific findings. Yet, that is effectively what Senator Durenberger's bill would do. This seems to us to be an extremely unsound and unwise way to develop regulatory policy.

We do not wish to appear querulous, but this is no small matter. We pride ourselves on being good corporate citizens and have cooperated conscientiously with all appropriate agencies to ensure that sound regulation is effected for the protection of us all. We have poured considerable effort and money into cooperating with the sound scientific process followed by EPA in preparing the Nickel Health Assessment Document. But we continue to be plagued by the abuse and misuse of science both by Congress and by the regulatory agencies. Accordingly, we respectfully urge Congress to remember that erroneously describing a compound as "toxic" can only cause unnecessary alarm in the workplace, create unnecessary concern in the community, result in the imposition of severe but unjustified burdens, and do unnecessary damage to the commercial interests of companies which produce and use those compounds.

As a result of the careless handling of data and the Tyranny of Lists, Inco has experienced all of these unfortunate consequences. We strongly urge the Committee not to cause us further difficulties by effectively identifying nickel as a "toxic air pollutant" and an "extremely hazardous air pollutant" in the present bill.

Finally, while we can only attest to our own experience, we understand that the problems cited here are shared by countless other enterprises across the country.

Sincerely,

Agassiz Basin Group Sierra Club
2229 Springbrook
Grand Forks, North Dakota, 58201

Testimony for Environmental Protection Subcommittee of the Senate Environmental and Public Works Committee, U.S. Senate, 176 Russell Bldg., Washington, D.C. 20510

My name is Joseph E. DeFlyer, and I am the chair of the Agassiz Basin Group of the Sierra Club, and a resident of Grand Forks, North Dakota. I would like to testify that on the basis of our experiences here in Grand Forks, North Dakota, there is insufficient protection for the public from highly toxic forms of air pollution, and that a good solution would be to tighten up the toxics provisions of the Clean Air Act.

Grand Forks is the site of the Energy Research Center, which has been a coal research center since the 1950's, formerly under D.O.E, and since 1982, under the University of North Dakota, with some support from D.O.E. During 1986, the ERC signed a contract with Union Carbide to do experimental incineration of PCB's and related chemicals at their facility, which is situated in the middle of Grand Forks, and at the eastern end of the UND campus. Despite the dangerous and risky nature of this work, the Denver EPA granted them a permit. When local citizens and environmental groups found out what the project involved, opposition grew steadily, and as it became more widely known what risks would be involved the State Health Dept. became more concerned. Finally, after lengthy hearings in early 1987, the North Dakota State Health Dept. refused to issue state permits for the work. If they had not denied the state permit, the citizens groups would have sued EPA in Federal Courts, pointing out that they (EPA) did not do their job of strictly enforcing the laws they are responsible for administering.

The entire incident points out the fact that it is difficult to determine what the Federal air pollution laws are, and also too hard to get the Federal Agencies to enforce them strictly. A good solution would be to address the overall emission of toxics, regardless of source, in the Clean Air Act. I feel strongly that this should be done, and will work toward that end now and in the future. I hope you can put some teeth in the Clean Air Act, and solve these problems and uncertainties for good.

This testimony has been written as part of the North Dakota Clean Air Coalition's overall efforts to affect the shape of the Clean Air Act. The Agassiz Basin Group of the Sierra Club is a firm part of that effort.

Thank you,
Joseph E. DeFlyer
Joseph E. DeFlyer

June 18, 1987
(ph. 701-775-8586)

SIERRA CLUB

TESTIMONY OF
JOHN L. LAMB, EXECUTIVE COMMITTEE MEMBER
CHAIRMAN FOR CONSERVATION IN NORTH DAKOTA
DACOTAH CHAPTER, SIERRA CLUB
1204 S. University Drive
Fargo, ND 58103

PRESENTED TO THE U.S. SENATE SUBCOMMITTEE
ON ENVIRONMENTAL PROTECTION, JUNE 19, 1987
HONORABLE GEORGE MITCHELL, CHAIRMAN

Lamb, Sierra Club, Page 1

Mr. Chairman and subcommittee members, thank you for this opportunity to voice the concern of several hundred Sierra Club members in North Dakota. We support the continuing efforts of the North Dakota Clean Air Coalition to protect and preserve the quality of the clean air we used to take for granted in our state.

We believe that there are threats from toxic air pollutants in North Dakota that have fallen through the cracks in previous federal legislation. One threat, hydrogen sulfide gas, can be addressed by adding it to the list of toxics covered in the Clean Air Act. Hydrogen sulfide is a toxic gas which is produced with petroleum and natural gas in western North Dakota. We believe that the state has failed to adequately regulate this substance, and is in fact callous in their lack of regard for environmental protection, being primarily interested in the economics of control. Unless this substance is regulated by the Clean Air Act, it will continue to adversely affect lives and property in North Dakota. To illustrate that a threat exists, the following excerpts are quoted from a report titled "Impacts of oil and gas development activities in areas of environmental concern," by Gail Kuntz, written for the State of Montana Environmental Quality Council, September 9, 1986. This report also points out the failure of North Dakota's state air pollution emmission standards to adequately protect against adverse impacts of hydrogen sulfide.

> The environmental concerns, as stated in the park's (Theodore Roosevelt National in North Dakota) draft General Management Plan, include "visual impacts, noise, and obnoxious odors that conflict with the solitude and natural scene of the park."
>
> Air quality has deteriorated over western North Dakota and the park as a result of the development (oil and gas). Hydrogen sulfide (H_2S) is present in much of the gas produced with oil in the Williston Basin...Theodore Roosevelt National Park is a Class I air quality area where allowable levels of SO_2 and particulate matter are severely restricted. Air Quality monitoring studies have indicated that both SO_2 and H_2S concentrations have periodically exceeded allowable concentrations in the park and that North Dakota's ambient air standards have also been exceeded.

It is significant that in North Dakota, the State Health Department issues permits for air pollution and the State Industrial Commission permits oil and gas development. Maintenance of clean air is in conflict of interest among two state agencies and development (economic) interests. In the fall of 1986 oil industry interests applied for exemptions to air quality standards for over 100 wells in order to allow increased flaring at the wellhead of natural gas containing hydrogen sulfide

Lamb, Sierra Club, Page 2

gas. It is ironic that a high-level Commission employee supported relaxation of air quality standards in order to improve the economic climate for oil and gas development. In a Bismarck Tribune report, August 10, 1986, the state's chief oil and gas enforcement officer said, "it is impossible to say from one day to the next what wells are actually flaring and how much gas is being burned." He also said that legally they must grant exemptions if the oil company has shown piping it (to a collection or clean-up site) is unfeasible. A copy of the news article is attached. Reading the article is necessary in order to understand that an arrogant attitude toward air pollution control control exists in North Dakota.

The Dacotah Chapter supports regulation of all airborne toxic substances through the new Clean Air Act, especially when regulation by lesser authority is encumbered by conflicts of interest between economic development and "turf battles" among state agencies, as is the case in North Dakota with hydrogen sulfide. We recommend that hydrogen sulfide gas be added to the list of toxic materials covered by the new Clean Air Act.

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Attachment, Lamb, Sierra Club

BUSINESS Page 4D ☐ Sunday, August 10, 1986 ☐ The Bismarck Tribune

Gas creates a dilemma

By JANELL COLE
Tribune Staff Writer

Would you spend half a million dollars to build a pipeline to sell natural gas that's not worth half a million dollars?

Neither would the oil companies operating in North Dakota.

That's why millions of cubic feet of natural gas is going up in smoke — burned off in the state's western oilfields.

Virtually all of this flaring is legal. The North Dakota Industrial Commission has given its stamp of approval, agreeing with the companies in many cases that it's neither economical nor feasible to pipe the gas.

MANY OF the state's oil wells produce some natural gas along with the oil. But often there's not enough of it to warrant piping it to market. It has to be disposed of, so it's burned — at or near the wellhead.

Because much of the gas contains poisonous hydrogen sulfide, it's safer to burn it than not. The byproduct, sulfur dioxide, is far less toxic.

Wes Norton, chief enforcement officer for the commission's oil and gas division, gives this hypothetical example of the economics:

Take an oil well, any oil well. Getting the oil to market is relatively easy and economical. For the sake of this discussion, we won't worry about the oil.

BUT SAY the well is 10 miles from the nearest natural gas purchaser's pipeline. Say it'll cost $50,000 per mile to build a gas gathering line to the pipeline.

Total cost: $500,000.

The gas probably has a market value of something like $2 per thousand cubic feet. If the oil company knows it won't make $500,000 plus a reasonable return, it'll ask the state if it can burn the gas.

The state usually says yes, although many times only temporarily, Norton said. If the marketplace turned $2 gas into $6 gas, for instance, the state — and probably the oil company — would probably change its mind, Norton said.

A LOT of people are unhappy about flaring.

"Certainly it's a waste," said McKenzie County rancher Dave Nelson of Keene. "Sometime down the road, I'm sure we're going to wish we had some part of this gas back."

Others say hydrogen sulfide and the sulfur dioxide that come from burning it is unhealthy and destroys property.

But the State Health Department had its chance to object this spring at hearings held on flaring exemptions for hundreds of oil wells in the state. It said the state's ambient air quality standards were not being exceeded.

THE HEALTH Department also says it doesn't have the resources to find out exactly how harmful the gas is. Officials there are showing more interest in the subject. But their concern didn't enter into the granting of the exemptions.

The Dakota Resource Council, a membership group based in Dickinson, is one critic of the flaring.

Its members are unhappy that a law they supported in the 1985 Legislature that would have cut down on flaring isn't working the way they originally thought. Oil company lobbyists succeeded in getting it amended so there's a big loophole in it, they said.

The loophole lets the companies flare away as long as they can show the Industrial Commission that it's not feasible to get the gas to market.

SO THERE'S been no decrease in flaring, DRC said.

But neither has there been as big an increase as DRC thinks, said Norton.

Just because hundreds of wells now have been given exemptions from the flaring laws doesn't mean they are all flaring, he said. Many companies were advised by their attorneys to get the exemption in case there is a problem with the well or the gas processing plant it pipes to.

When pipeline and gas plant problems occur, the gas gets flared so the oil can keep flowing.

Norton said it is impossible to say from one day to the next what wells are actually flaring and how much gas is being burned.

AND, HE said, the law doesn't mean there is a lot of extra gas to be flared. "We just made a determination whether it had any value."

Legally, that's all they have to do. In fact, Norton said, the law says the state must grant the exemption if the oil company has shown piping it is unfeasible.

Norton said DRC didn't show up to protest when the state held hearings on the exemptions this spring.

"No one appeared at any of the hearings and stated they opposed any of the cases," he said.

What DRC did was write a letter asking the Industrial Commission to consider the waste of energy, the loss of the gas royalty money and the probable health problems from the flaring.

THE LETTER and the issues in it weren't considered in granting the individual exemptions, Norton said, because it was not written in time and because objections have to be made on each individual exemption request.

II

100th CONGRESS
1st Session

S. 1384

To amend the Clean Air Act.

IN THE SENATE OF THE UNITED STATES

June 17, 1987

Mr. Durenberger (for himself, Mr. Lautenberg, Mr. Stafford, Mr. Mitchell, Mr. Baucus, and Mr. Chafee) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To amend the Clean Air Act.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Section 1. This bill may be cited as the "Toxic Air Pollution Control Act of 1987".

Sec. 2. Section 112 of the Clean Air Act (42 U.S.C. 7412) is amended to read as follows:

"NATIONAL EMISSION STANDARDS FOR HAZARDOUS AND TOXIC AIR POLLUTANTS

"Sec. 112. (a) Purpose.—It is the purpose of this section to establish standards, regulations and requirements that will protect human health and the environment from exposure to hazardous air pollutants, control the release of toxic air pollutants and prevent the release of extremely hazardous substances into the air and to authorize and require the Administrator of the Environmental Protection Agency to take appropriate regulatory and other actions to protect human health and the environment from injury or damage that may result from the emission of air pollutants.

"(b) DEFINITIONS.—For purposes of this section—

"(1) The term 'hazardous air pollutant' means an air pollutant which in the judgment of the Administrator causes, or contributes to, air pollution which may reasonably be anticipated to result in—

"(A) an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness (including, but not limited to, substances which are carcinogenic, mutagenic, teratogenic, neurotoxic, which cause reproductive dysfunction, or which are acutely or chronically toxic, whether individually or by reason of cumulative or synergistic effects), or

"(B) adverse effects to the environment including disruption of climatic or atmospheric processes or which through ambient concentrations, deposition or bioaccumulation may cause injury to or loss of wildlife, aquatic life or damage to other natural resources except air pollutants the environmental effects of which are subject to mitigation pursuant to part E of this Act or other air pollutants for which the Congress explicitly establishes a control program in lieu of this section.

"(2) The term 'new source' means a stationary source the construction or modification of which is commenced after the Administrator proposes regulations under this section establishing an emission standard which will be applicable to such source.

"(3) The term 'best available control technology' means an emission limitation (including a prohibition of emissions, if achievable) based on the maximum degree of reduction of emissions of a pollutant emitted from or which results from any source within a category to which the limitation applies which the Administrator (or a State acting pursuant to the authorities of subsection (f)) determines is achievable for sources in such category through application of measures, processes, methods, systems or techniques including, but not limited to, measures which—

"(A) reduce the volume of such pollutants through process changes, substitution of materials or other modifications, "(B) enclose systems or processes to eliminate emissions, or

"(C) collect, capture or treat such pollutants when released from a process, stack, storage or fugitive emissions point.

In determining the 'best available control technology' which is achievable by a category or subcategory of major sources, the Administrator (or a State acting pursuant to a program approved under subsection (f)) shall review the emission limitations achieved in practice or contained in a permit for sources of a similar size, type and class and shall identify the most stringent of such emission limitations. An emission limitation based on the application of 'best available control technology' under this section shall be no less stringent than the most stringent limitation identified pursuant to the previous sentence.

"(4) The term 'major source' means any stationary source (including all emission points and units of such source located within a contiguous area and under common control) of air pollutants which emits, or has the potential to emit, ten tons per year or more of any air pollutant or combination of air pollutants which have been listed pursuant to subsection (d).

"(5) The term 'area source' means any stationary or mobile source of air pollutants which is not a major source and which emits, or has the potential to emit, any air pollutant or pollutants which have been listed pursuant to subsection (d) which is emitted into the air in measurable amounts.

"(6) The term 'toxic air pollutant' means any chemical or substance subject to the requirements of section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and which is emitted into the air.

"(7) The term 'stationary source' means any facility or installation or unit of such facility or installation which emits or may emit any air pollutant.

"(8) The terms 'modification,' 'owner or operator,' and 'existing source' shall have the same meaning as such terms have under section 111(a).

"(c) HAZARDOUS AIR POLLUTANTS.—

"(1) LISTING AND STANDARDS.—

"(A) The Administrator shall, within 90 days after the date of enactment of the Clean Air Amendments of 1970, publish (and from time to time thereafter revise) a list which includes each hazardous air pollutant for which the Administrator shall establish an emission standard under this subsection and identifies the categories of sources which emit each such pollutant in more than de minimis amounts. The list shall include arsenic, asbestos, benzene, beryllium, coke oven emissions, mercury, radionuclides, vinyl chloride, acrylonitrile, butadiene, cadmium, carbon tetrachloride, chloroform, chromium, ethylene dichloride, ethylene oxide, methylene chloride, perchloroethylene, and trichloroethylene. The Administrator shall add any air pollutant to the list established by this subparagraph (whether or not the Administrator has information with respect to such air pollutant sufficient to establish a specific emission standard) whenever available evidence indicates that, without further regulation of the sources of such air pollutant—

"(i) the most exposed persons may be exposed to such pollutant in ambient concentrations which may exceed the threshold for adverse health effects,

"(ii) (for non-threshold pollutants) the most exposed persons may be exposed to ambient concentrations of such pollutant which may present more than a negligible risk of adverse health effects, or "(iii) significant adverse effects to the environment are likely to occur as a result of ambient concentrations, deposition or bioaccumulation of such pollutant.

"(B) The Administrator shall assess the health and environmental effects of various air pollutants or classes of air pollutants to determine whether or not such pollutants meet the criteria for listing established by subparagraph (A).

"(i) The Administrator shall conduct assessments for air pollutants or classes of pollutants and shall, to the extent practicable, complete each assessment within a 2-year period. Each year the Administrator shall publish and take comment on the list of pollutants which are candidates for assessment in the following year.

"(ii) In selecting the pollutants which are to be subject to assessments under this subsection, the Administrator shall first consider those pollutants which are listed pursuant to sections 302 and 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and other substances which are proposed for inclusion on such lists.

"(iii) The National Toxicology Program through its Director, shall make recommendations to the Administrator as may be appropriate with respect to air pollutants which should be subject to assessment pursuant to this subparagraph.

"(iv) The Administrator shall submit preliminary results from each assessment to the Science Advisory Board for review and comment before publishing the assessment in final form. The Board shall respond, as it deems appropriate, but in no event shall the Board's review delay the completion of any assessment under this subparagraph.

"(v) At the conclusion of the 2-year period the Administrator shall publish a determination that—

"(I) the air pollutant is a hazardous air pollutant as defined in section 112(b)(1),

"(II) the air pollutant is not a hazardous air pollutant as defined in section 112(b)(1), or

"(III) there is insufficient information to determine whether the air pollutant is a hazardous air pollutant.

Such determination shall be made after opportunity for comment from interested parties. The Administrator shall establish a docket for each substance identified under clause (i) in a manner comparable to that provided in section 307(d), (2), (3), (4) and (5). Such determination shall be published together with a statement of the basis for such determination and an identification of the information available to the Administrator at the time of the determination. A determination pursuant to subclause (II) is a final Agency action. If, with respect to any pollutant or class of pollutants, the Administrator determines that there is insufficient information pursuant to subclause (III), the Administrator shall by rule, after notice and opportunity for public comment, establish a research program to collect the necessary information and a date (no later than 3 years after the date of the initial determination) on which a further determination will be made.

The Administrator may require the owners and operators of facilities which emit the pollutant to conduct the necessary research and such owners and operators shall be liable to the United States for the costs of such research.

"(vi) The identification of a substance or material under paragraph (i) shall not be deemed a presumption that such substance or material is a toxic or hazardous air pollutant.

"(C) any person may petition the Administrator to list a substance under subparagraph (B). Within 180 days after the receipt of such petition the Administrator shall either grant such petition or publish a written explanation of why the petition should not be granted. If the Administrator grants the petition, the substance shall be included on the list of substances under subparagraph (B) for which an assessment will commence in the following year.

"(D) At the time of inclusion of any air pollutant on the list established by subparagraph (A), the Administrator shall publish and take public comment on, a schedule for the proposal and promulgation of regulations establishing an emission standard or standards for such pollutant. The schedule shall provide for the promulgation of such standard or standards as expeditiously as practicable but in no event later than 36 months after the date on which such pollutant is listed. At least 180 days before promulgating any emission standard, the Administrator shall publish a proposed standard together with a notice for public hearings.

"(E) Not later than 36 months after the inclusion of any air pollutant on the list established by subparagraph (A), the Administrator shall promulgate an emission standard or standards for such pollutant for all categories of sources listed pursuant to subparagraph (A), unless the Administrator finds, on the basis of information included in the docket, that such pollutant clearly is not a hazardous air pollutant. The emission standard or standards shall be set at a level at which no known or anticipated adverse effect on the health of persons occurs including an ample margin of safety unless a more stringent standard is required to protect the environment. No consideration of costs, economic, energy or other factors or technological feasibility shall be included in the determination of the appropriate level for any emission standard under this subsection.

"(F) Any emission standard established pursuant to this subsection shall become effective upon promulgation and, with respect to new sources, shall apply to such sources the construction or modification of which was commenced after the date on which such standard was proposed.

"(2) INFORMATION AND GUIDANCE.—The Administrator shall, from time to time, issue information on pollution control techniques for air pollutants subject to the provisions of this subsection.

"(3) PROHIBITIONS.—

"(A) After the effective date of any emission standard under this subsection—

"(i) no person may construct any new source or modify any existing source which, in the Administrator's judgment (or the judgment of a State acting pursuant to a program approved under subsection (f), will emit an air pollutant to which such standard applies, unless the Administrator (or the State) finds that such source, if properly operated, will not cause emissions in violation of such standard and establishes such requirements as are necessary to assure proper operation of such source, and

"(ii) no air pollutant to which such standard applies may be emitted from any stationary source in violation of such standard, except that in the case of an existing source—

"(I) the Administrator (or a State acting pursuant to a program approved under subsection (f)) shall, after notice and opportunity for public comment, establish a compliance date or dates for each category of existing sources, which shall provide for compliance as expeditiously as practicable, but in no event later than two years after the effective date of such standard, and

"(II) in the case of a pollutant for which there is no health effects threshold, the Administrator (or a State acting pursuant to a program approved under subsection (f)) may exempt a particular existing source or category of existing sources from compliance with the stand-

> ard for not to exceed 10 years if the Administrator (or the State) determines based on specific information submitted and placed in the docket that owners or operators of such source or sources would experience extraordinary economic hardship in compliance with such standard and requires that such source or category of sources comply with an alternative emission limitation which would result from the application of best available control technology for that pollutant and category and that after compliance with such alternative emission limitation the maximum exposed persons will not be exposed to ambient concentrations of the pollutant which result from emissions from the source at levels which present more than a negligible risk of adverse health effects.

The owner or operator of each source of air pollutants subject to an emission standard under this subsection shall certify in a written statement submitted to the Administrator (or to a State acting pursuant to a program approved under subsection (f)) that such facility is in compliance with the standard on and after the effective date.

"(B) The President may exempt any stationary source from compliance with subparagraph (A) for a period of not more than two years if the President finds that the technology to implement such standards is not available and the operation of such source is required for reasons of national security. An exemption under this subparagraph may be extended for one or more additional periods, each period not to exceed two years. The President shall make a report to Congress with respect to each exemption (or extension thereof) made under this subparagraph.

"(4) EXCEPTION.—

"(A) For purposes of this subsection, if in the judgment of the Administrator, it is not feasible to prescribe or enforce an emission standard for control of a hazardous air pollutant or pollutants, the Administrator may instead promulgate a design, equipment, work practice, or operational standard, or combination thereof, which in the Administrator's judgment is adequate to protect public health and the environment from any known or anticipated adverse effect from such pollutant or pollutants with an ample margin of safety. No consideration of costs or economic, energy or other factors shall be included in the determination of the appropriate level for any standard under this paragraph. In the event the Administrator promulgates a design or equipment standard under this subsection, such standard shall include requirements which will assure the proper operation and maintenance of any such element of design or equipment.

"(B) For the purpose of this paragraph, the phrase 'not feasible to prescribe or enforce an emission standard' means any situation in which the Administrator determines that—

"(i) a hazardous air pollutant or pollutants cannot be emitted through a conveyance designed and constructed to emit or capture such pollutant, or that any requirement for, or use of, such conveyance would be inconsistent with any Federal, State, or local law, or

"(ii) the application of measurement methodology to a particular class of sources is not practicable due to technological or economic limitations.

"(C) If after notice and opportunity for public hearing, any person establishes to the satisfaction of the Administrator that an alternative means of emission limitation will achieve a reduction in emissions of any hazardous air pollutant at least equivalent to the reduction in emissions of such hazardous air pollutant achieved under the requirements of subparagraph (A), the Administrator shall permit the use of such alternative by the source for purposes of compliance with this subsection with respect to such pollutant.

"(D) Any standard promulgated under subparagraph (A) shall be promulgated in terms of an emission standard whenever it becomes feasible to promulgate and enforce such standard in such terms.

"(E) Any design, equipment, work practice, or operations standard, or any combination thereof, described in this paragraph shall be treated as an emission standard for purposes of the provisions of this Act (other than the provisions of this paragraph).

"(d) TOXIC AIR POLLUTANTS.—

"(1) IN GENERAL.—

"(A) LIST OF TOXIC AIR POLLUTANTS.—There is hereby established a list of toxic air pollutants which shall include, but not be limited to, each chemical or substance subject to the requirements of section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 which is emitted into the air in measurable amounts. An air pollutant for which an emission standard has been established under subsection (c) shall not be toxic air pollution for purposes of this subsection.

"(B) ADDITIONS TO THE LIST.—The Administrator shall from time to time, but not less often than every three years, review and revise the list established by subparagraph (A). Any person may petition the Administrator to add a substance to the list established under subparagraph (A) and the Administrator shall add such substance to the list upon a showing that the substance is known to cause or may reasonably be anticipated to cause adverse effects on human health or the environment and the substance is emitted into the air in more than de minimis amounts. Within 180 days after receipt of such petition the Administrator shall either grant such petition or publish a written explanation of why the petition should not be granted. The Administrator may not deny a petition on the basis of inadequate resources or time for review.

"(C) DELISTING.—With respect to requirements that may be imposed under paragraphs (2) or (3), any person may petition the Administrator to remove a particular toxic air pollutant from the list of pollutants established pursuant to subparagraphs (A) and (B) and the Administrator shall remove such pollutant from the list upon a showing that there is complete, valid and adequate data on the health and environmental effects of such pollutant and that—

"(i) the pollutant will not cause any adverse effect on the health of persons or the environment; or

"(ii) the threshold for adverse health or environmental effects caused by the pollutant is substantially above the emissions limitation which would result from the application of best available control technology and compliance with the standard would impose extraordinary economic costs on the owners or operators of major sources of such pollutant.

If the Administrator determines that it is appropriate to remove a pollutant from the list pursuant to a showing under clause (ii), the Administrator shall, simultaneous with such removal, establish an emission limitation for such pollutant which, in the Administrator's judgment, is adequate to protect human health and the environment with an adequate margin of safety and which shall apply to all major sources of such pollutant in lieu of a standard established under paragraph (2). Any pollutant which is removed from the list pursuant to a showing under clause (ii), shall remain on the list with respect to actions taken and requirements imposed under paragraph (3).

"(2) MAJOR SOURCES.—

"(A) MAJOR SOURCE CATEGORIES.—The Administrator shall publish (and from time to time revise) a list of categories of all major sources which emit toxic air pollutants listed pursuant to this subsection. The categories and subcategories of major sources designated pursuant to this subparagraph shall, to the extent practicable, be consistent with the source categories established pursuant to subsection (c), section 111 (with respect to new source performance standards) and part C (with respect to prevention of significant deterioration) of this Act. The categories and subcategories listed shall include, but not be limited to, synthetic organic chemical manufacturing plants; petroleum refineries; treatment, storage and disposal facilities for hazardous and solid waste; publicly owned treatment works; industrial wastewater treatment facilities; and facilities burning used oil.

"(B) STANDARDS.—The Administrator shall promulgate an emission standard or standards for each category or subcategory of toxic air pollutants which shall assure that all major sources of toxic air pollutants will achieve a degree of emissions reduction at least equivalent to that which would be achieved if the source employed best available control technology to reduce the emissions of such pollutants. To the maximum extent practicable the Administrator shall establish such standards by identifying best available control technology for classes of pollutants using the generic classes listed at 52 Federal Register 21168. The Administrator shall from time to time (but not less often than every 5 years) review and revise the emission standards established pursuant to this paragraph in light of improvements in the emissions reduction potential of available control technologies.

"(C) COMPLIANCE SCHEDULE.—After the date of promulgation of any emission standard for a category or subcategory of major sources under this paragraph—

"(i) no person may construct any new major source or modify any existing major source which, in the judgment of the Administrator (or a State acting pursuant to a program approved under subsection (f)), will emit a toxic air pollutant, unless the Administrator (or the State) finds that such source if properly operated will not cause violations of such standard and establishes such requirements as are necessary to assure proper operation of such source, and

"(ii) no toxic air pollutant may be emitted from any major source in violation of such standard, except that in the case of an existing source the Administrator (or a State acting pursuant to a program approved under subsection (f)) shall establish a compliance date or dates for each category of existing sources, which shall provide for compliance as expeditiously as practicable, but in no event later than 3 years after the effective date of such standard. The Administrator may grant a waiver permitting an existing source a period of up to 2 additional years after the compliance date established under this clause to comply with the standard, if the Administrator finds that such a period is necessary for the installation of controls and that steps will be taken during the period of the waiver to assure that the health of persons will be protected from imminent endangerment.

"(D) SCHEDULE FOR PROMULGATION.—

"(i) Not later than 12 months after the date of enactment of this subsection, the Administrator shall list under subparagraph (A) the categories and subcategories of sources which emit toxic air pollutants. The Administrator shall promulgate regulations establishing emission standards for such sources as expeditiously as practicable assuring that standards for 25 percent of such categories or subcategories shall be established not later than 3 years after the date of enactment of this Act and that standards for an additional 25 percent of such categories or subcategories shall be established no later than 5 years after the date of enactment of this Act. Emissions standards for all categories and subcategories shall be effective not later than 10 years after the date of enactment of this Act.

"(ii) In determining priorities for promulgating standards for categories and subcategories of major sources for the purpose of clause (i), the Administrator shall consider—

"(I) the quantity of toxic air pollutants that each such category or subcategory will emit;

"(II) the known or anticipated adverse effects of such pollutants emitted on human health and the environments; and

"(III) the exposure to and location of sources of such pollutants and the consequent urgency of a national standard.

"(E) OTHER APPLICABLE REQUIREMENTS.—In no event shall application of 'best available control technology' in setting standards for major sources under this paragraph result in emissions for a source of any air pollutant which will exceed the emissions allowed by any applicable standard established for new sources pursuant to section 111 (including new source performance standards), for prevention of significant deterioration established pursuant to part C (including best available control technology requirements), or for nonattainment areas established pursuant to part D (including lowest achievable emission rates and reasonably available control technology requirements) of this Act or any permit issued by a State which is applicable to emissions from a particular source.

"(3) AREA SOURCES.—

"(A) AREA SOURCE CATEGORIES.—The Administrator shall publish (and from time to time revise) a list of all categories of area sources which emit the toxic air pollutants listed pursuant to this subsection. At the time any category of area sources is listed, the Administrator shall also publish a detailed estimate of the total quantity of toxic air pollutants emitted by such category of sources in calendar year 1988. The categories of area sources listed shall include, but not be limited to degreasing and solvent cleaning operations; pesticide applications; wood combustors; other small combustion units; gasoline marketing; mobile sources; and materials transportation.

"(B) Objective.—It shall be the objective of this paragraph to reduce emissions of toxic air pollutants from area sources by an amount not less than 25 percent of 1988 emissions not later than 4 years after the date of enactment of this subsection. It shall be a further objective of this subsection to reduce emissions of toxic air pollutants from area sources by an amount not less than 10 percent of 1988 emissions during each of three 2-year periods following the initial reduction for a total reduction of 55 percent of 1988 emissions of toxic air pollutants emitted from area sources not later than 10 years after the date of enactment of this subsection.

"(C) Requirements.—To achieve the objectives established by subparagraph (B), the Administrator shall use the authorities of this Act, the Toxic Substances Control Act, the Federal

Insecticide, Fungicide and Rodenticide Act, the Solid Waste Disposal Act and other appropriate Federal statutes administered by the Environmental Protection Agency to establish emission standards, regulations and other requirements applicable to area sources of toxic air pollutants. The Administrator may promulgate an emission standard or standards for toxic air pollutants applicable to any category or subcategory of area sources requiring each source (including both new and existing sources) in the category or subcategory to achieve a degree of emissions reduction at least equivalent to that which would be achieved if the source employed reasonably available control technology to reduce emissions of such pollutants. The Administrator may use the authorities of section 111 of this Act to require that new sources in any category comply with emissions standards as provided in such section or a degree of emissions reduction equivalent to that which would be achieved if new sources in the category employed best available control technology. The Administrator may promulgate a design, equipment, work practice, or operational standard, or combination thereof, including requirements which will assure the proper operation and maintenance of any such element of design or equipment, applicable to any new or existing source in any category or subcategory of area sources which emit significant amounts of the toxic air pollutants listed pursuant to this subsection.

"(e) EXTREMELY HAZARDOUS AIR POLLUTANTS.—

"(1) OBJECTIVE.—It shall be the objective of the regulations and programs authorized under this subsection to prevent the release to the air and to minimize the consequences of any accidental release of any extremely hazardous air pollutant listed pursuant to paragraphs (2)(A) or (3)(A). The owners and operators of facilities producing, processing, handling or storing extremely hazardous substances have a general duty to design and maintain a safe facility taking such steps as are necessary to prevent releases and to minimize the consequence of accidental releases which do occur.

"(2) SUDDEN RELEASES.—

"(A) LIST OF EXTREMELY HAZARDOUS AIR POLLUTANTS SUBJECT TO SUDDEN RELEASE.—Within 30 days after the enactment of this subsection, the Administrator shall publish a list of extremely hazardous substances which may, as the result of sudden events, be released as air pollutants in concentrations that may reasonably be anticipated to cause acute toxic effects in humans. The list shall be drawn from, but not be limited to, those substances on the list required by section 302 of the Emergency Planning and Community Right-to-Know Act of 1986. The Administrator shall from time to time (but not less often than every 5 years) review and revise the list established by this paragraph adding substances which, as a result of sudden events, may be released as air pollutants in concentrations that may reasonably be anticipated to cause acute toxic effects in humans.

"(B) HAZARD ASSESSMENTS.—

"(i) Not later than 18 months after the date of enactment of this subsection (or 12 months after a substance is listed under subparagraph (A) whichever is later), the owner or operator of each facility at which a substance listed pursuant to subparagraph (A) is present shall conduct and complete a hazard assessment for each extremely hazardous air pollutant present at the facility. The purpose of such assessments shall be to anticipate the consequences of a range (including worst case events) of accidental releases of extremely hazardous air pollutants from the facility and to provide information that may aid in the prevention or mitigation of or response to such accidental releases.

"(ii) The hazard assessments required by this subparagraph shall include, but not be limited to, the following elements—

"(I) basic data on the facility, units at the facility which contain or process extremely hazardous air pollutants (including the longitude and latitude of such units), facility operating procedures, population of the nearby communities, and the meteorology of the area where the facility is located;

"(II) an identification of the potential sources of release of extremely hazardous air pollutants;

"(III) an identification of any previous releases including the amounts released, frequencies and durations;

"(IV) an identification of a range (including worst case events) of potential releases including an estimate of the size, concentration and duration of such potential releases and a correlation of such factors with the distance from the source of release;

"(V) a determination of potential exposure (including the concentration and duration of exposure) for all persons who may be put at risk as the result of a release;

"(VI) a determination of the probability of exposure as the result of various release scenarios including consideration of meteorological factors;

"(VII) information on the toxicity of the extremely hazardous air pollutants present at the facility;

"(VIII) a review of the efficacy of various release prevention and control measures; and

"(IX) a sensitivity analysis with respect to the uncertainties and assumptions incorporated in the hazard assessment.

"(iii) Each hazard assessment prepared pursuant to this subparagraph shall be updated biennially.

"(iv) Hazard assessments prepared pursuant to the requirements of this subparagraph shall be available to the Administrator, to the Chemical Safety and Hazards Investigations Board, to the State in which the facility is located, to any local emergency planning entity or public safety agency having responsibility for planning or response with respect to releases which may occur from such facility, and to the public subject to the conditions of sections 322, 323, and 324 of the Emergency Planning and Community Right-to-Know Act of 1986.

"(v) Not later than 12 months after the date of enactment of this subparagraph, the Administrator shall publish guidance with respect to the preparation of hazard assessments as required by this subsection. As a part of such guidance, the Administrator may collect and publish information on accident scenarios and consequences covering a range of possible events for various extremely hazardous air pollutants. The Administrator shall establish a program of long-term research to develop and disseminate information on methods and techniques of hazard assessment which may be useful in improving and validating the procedures employed in the preparation of hazard assessments under this subparagraph.

"(C) INVESTIGATIONS CAPACITY.—

"(i) There is hereby established within the Environmental Protection Agency an independent safety board to be known as the Chemical Safety and Hazards Investigations Board.

"(ii) The board shall consist of five members including a chairperson who shall be appointed by the President, by and with the advice and consent of the Senate. The other four members of the Board shall be appointed by the Administrator of the Environmental Protection Agency and may be selected from individuals in private life, or designated from the staff of the Agency or other agencies of the United States. At any given time, no less than three members of the

Board shall be individuals who have been appointed on the basis of technical qualification, professional standing, and demonstrated knowledge in the fields of accident reconstruction, safety engineering, human factors, chemical safety, toxicology or chemical regulation.

"(iii) The terms of office of members of the Board shall be 5 years, except as otherwise provided in this clause. Any individual appointed to fill a vacancy occurring on the Board prior to the expiration of the term of office for which his or her predecessor was appointed shall be appointed for the remainder of the term. Upon the expiration of his or her term of office, a member shall continue to serve until his or her successor is appointed and shall have qualified. Any member of the Board may be removed by the President for inefficiency, neglect of duty, or malfeasance in office.

"(iv) The chairperson shall be the chief executive officer of the Board and shall exercise the executive and administrative functions of the Board with respect to the appointment and supervision of personnel employed by the Board; the distribution of business among such personnel and among administrative units of the Board; and the use and expenditure of funds. Subject to the civil service and classification laws, the Board is authorized to select, appoint, employ and fix the compensation of such officers and employees, including investigators, attorneys, and administrative law judges, as shall be necessary to carry out its powers and duties under this subtitle.

"(v) The Board shall—

"(I) investigate (or cause to be investigated), and determine the facts, conditions, and circumstances and the cause or probable cause of any chemical spill or other accident involving the production, processing, handling or storage of chemical substances in which there is a fatality or substantial property damage;

"(II) report in writing on the facts, conditions and circumstances of each accident investigated pursuant to subclause (I) and make such reports available to the public;

"(III) issue periodic reports to the Congress, Federal, State and local agencies including the Environmental Protection Agency concerned with the safety of chemical production, processing, handling and storage, and other interested persons recommending and advocating meaningful responses to reduce the likelihood of recurrence or the consequences of chemical accidents of a similar nature to those investigated by the Board and proposing corrective steps to make chemical production, processing, handling and storage as safe and free from risk of injury as is possible;

"(IV) recommend to the Administrator of the Environmental Protection Agency proposed rules and orders which should be issued under the authority of this subsection to prevent or minimize the consequence of the release of extremely hazardous substances as a result of sudden events;

"(V) initiate and conduct special studies and special investigations on matters pertaining to the safety of chemical production, processing, handling and storage whether or not an accidental release has occurred where the Board has evidence which indicates the presence of a potential hazard or hazards;

"(VI) assess and reassess techniques and methods of hazard assessment and prepare and publish from time to time recommended procedures for hazard assessment; and

"(VII) establish by regulation requirements binding on persons for reporting accidents subject to the Board's investigatory jurisdiction under this subparagraph.

"(vi) Whenever the Board submits a recommendation with respect to the safety of chemical production, processing, handling and storage to the Administrator, the Administrator shall respond to such recommendation formally and in writing not later than 180 days after receipt thereof. The response to the Board's recommendation by the Administrator shall indicate whether the Administrator will—

"(I) initiate a rule-making or issue such orders as are necessary to implement the recommendation in full, pursuant to any timetable contained in the recommendation;

"(II) initiate a rule-making or issue such orders as are necessary to implement the recommendation in part; or

"(III) refuse to initiate a rule-making or issue orders as recommended.

Any refusal by the Administrator to implement a recommendation of the Board in full or in part, including any variation from the schedule contained in the recommendation, shall be accompanied by a statement from the Administrator setting forth the reasons for such refusal.

"(vii) The Board, or upon authority of the Board, any member thereof, any administrative law judge employed by or assigned to the Board, or any officer or employee duly designated by the Board, may, for the purpose of carrying out this subparagraph, hold such hearings, sit and act at such times and places, administer such oaths, and require by subpeona or otherwise attendance and testimony of such witnesses and the production of evidence as the Board or such officer or employee deems advisable.

"(viii) The Board, or an officer or employee of the Board duly designated, may conduct an inquiry to secure data with respect to any matter pertinent to the safety of chemical production, processing, handling, and storage upon publication of notice of such inquiry in the Federal Register and may require by order that any person engaged in the production, processing, handling or storage of chemicals to submit written reports and responses to such requests and questions as are propounded with respect to any matter pertinent to the duties and functions of the Board. Such reports and responses shall be submitted to the Board within such time and in such form as the Board may require.

"(ix) Any duly designated officer or employee of the Board, upon presenting appropriate credentials and a written notice of inspection authority, is authorized to enter any property wherein an extremely hazardous substance listed pursuant to subparagraph (A) is produced, processed, handled or stored and to do all things therein necessary for a proper investigation. Such officer or employee may inspect at reasonable times records, files, papers, processes, controls, and facilities and take such samples as are relevant to such investigation. Each inspection shall be commenced and completed with reasonable promptness and the results of such investigation made available.

"(x) The Board is authorized to establish such procedural and administrative rules as are necessary to the exercise of its functions and duties.

"(xi) The Board is authorized without regard to section 5 of title 41 of the United States Code to enter into such contracts, leases, cooperative agreements or other transactions as may be necessary in the conduct of the duties and functions of the Board with any other agency, institution, organization or person.

"(xii) The Administrator shall provide to the Board such support and facilities as the Board determines it needs to carry out its functions.

"(xiii) Whenever the Board submits or transmits any budget estimate, budget request, supplemental budget request, or other budget information, legislative recommendation, prepared testimony for congressional hearings, recommendation or study to the President, the Administrator or the Office of Management and Budget, it shall concurrently transmit a copy thereof to the Congress. No officer or agency of the United States shall have authority to require the Board to submit its budget requests or estimates, legislative recommendations, prepatred testimony, comments, recommendations or reports to any officer or agency of the United States for approval or review prior to the submission of such recommendations, testimony, comments or reports to the Congress. In the performance of their functions as established by this Act, the members, officers and employees of the Board shall not be responsible to or subject to supervision or direction of any officer or employee or agent of any other part of the Environmental Protection Agency or any other agency of the United States except that the President may remove any member of the Board for inefficiency, neglect of duty or malfeasance in office.

"(xiv) Copies of any communication, document, investigation, or other report, or information received or sent to the Board, or any member or employee of the Board, shall be made available to the public upon request, and at reasonable cost, except that the Board shall not disclose information obtained under this subparagraph which concerns or relates to a trade secret referred to in section 1905 of title 18 of the United States Code.

Such trade secret information may be disclosed in a manner designed to preserve confidentiality—

"(I) upon request, to other Federal Government departments and agencies for official use;

"(II) upon request, to any committee of the Congress;

"(III) in any judicial proceeding under a court order formulated to preserve the confidentiality of such information without impairing the proceedings; and

"(IV) to the public in order to protect health and safety, after notice to any interested person to whom the information pertains and an opportunity for such person to comment on such proposed disclosure (but only if the delay resulting from such opportunity to comment would not be detrimental to health and safety).

"(xv) The Board shall submit an annual report to the President and to the Congress which shall include, but not be limited to, information on accidents which have been investigated by or reported to the Board during the previous year, recommendations for legislative or administrative action which the Board has made, the actions which have been taken by the Administrator or the heads of other agencies to implement such recommendations, an identification of priorities for study and investigation in the succeeding year, progress in the development of risk reduction technologies and the response to and implementation of significant research findings on chemical safety in the public and private sector.

"(xvi) There are authorized to be appropriated to carry out the provisions of this subparagraph not to exceed $25,000,000 in each of the fiscal years ending September 30, 1988, 1989, 1990, 1991, and 1992.

"(D) RELEASE DETECTION, PREVENTION AND CORRECTION REQUIREMENTS.—In order to prevent the release of extremely hazardous air pollutants from all devices and systems (including pumps, compressors, valves, flanges, connectors, containers, and vessels) from which there may be a release of any extremely hazardous air pollutant listed under subparagraph (A) due to sudden events, the Administrator shall promulgate release prevention, detection and correction requirements which may include monitoring, record-keeping, reporting, vapor recovery, secondary containment, and other design, equipment, work practice, and operational requirements which shall be applicable to all such devices and systems which are located at a facility which manufactures, stores or processes any extremely hazardous air pollutant listed pursuant to subparagraph (A).

"(E) ORDER AUTHORITY.—

"(i) In addition to any other action taken, when the Administrator determines that there may be an imminent and substantial endangerment to the public health or welfare or the environment because of an actual or threatened release of an extremely hazardous air pollutant from a facility, the Administrator may secure such relief as may be necessary to abate such danger or threat, and the district court of the United States in the district in which the threat occurs shall have jurisdiction to grant such relief as the public interest and the equities of the case may require. The Administrator may also, after notice to the State in which the facility is located, take other action under this subsection including, but not limited to, issuing such orders as may be necessary to protect human health and welfare and the environment.

"(ii) Any person who willfully violates, or fails or refuses to comply with, any order of the Administrator under clause (i) may, in an action brought in the appropriate United States district court to enforce such order, be fined not more than $25,000 for each day in which such violation occurs or failure to comply continues.

"(iii) Within 180 days after enactment of this subsection, the Administrator shall publish guidance for using the order authorities established by this subparagraph. Such guidance shall provide for coordination with other authorities under this Act, the Comprehensive Environmental Response, Compensation and Liability Act, the Federal Water Pollution Control Act, the Solid Waste Disposal Act, and the Toxic Substances Control Act which are available for response to such releases or threatened releases.

"(3) NON-SUDDEN AND EPISODIC RELEASES.—

"(A) LIST OF EXTREMELY HAZARDOUS AIR POLLUTANTS SUBJECT TO NON-SUDDEN AND EPISODIC RELEASE.—Within 30 days after enactment of this subsection, the Administrator shall publish a list of extremely hazardous substances which may, as a result of non-sudden or episodic events, be released as air pollutants in concentrations that may be reasonably anticipated to cause acute or chronic adverse health effects in humans. The list shall be drawn from, but not be limited to, those substances on the list required by section 302 of the Emergency Planning and Community Right-to-Know Act of 1986. The Administrator shall from time to time (but not less often than every five years) review and revise the list established by this paragraph.

"(B) AUDITS AND SAFETY INSPECTIONS.— The owner or operator of any facility or device from which there may be a release of an extremely hazardous air pollutant as a result of non-sudden and episodic events shall be required under regulations issued pursuant to this subsection to carry out an annual audit and safety inspection of such facility or device. The purpose of such audit and investigation shall be to locate and correct all leaks and other routine or episodic releases of any extremely hazardous air pollutant listed under subparagraph (A). The results of such inspection and the results of any other safety inspection, survey or audit carried out with respect to the facility or device shall be available to the Administrator, to the State in which the facility or device is located, to any local emergency planning entity or public safety agency with responsibility to plan for or respond to releases from the facility, and to the public consistent with the provisions of sections 322, 323 and 324 of the Emergency Planning and Community Right-to-Know Act of 1986.

"(C) RELEASE DETECTION, PREVENTION AND CORRECTION REQUIREMENTS.—In order to prevent the release of extremely hazardous air pollutants listed pursuant to subparagraph (A) from all devices and systems (including pumps, compressors, valves, flanges, connectors, containers and vessels) from which there may be a release of such pollutants due to non-sudden or episodic events, the Administrator shall promulgate leak prevention, detection and correction requirements which may include monitoring, record-keeping, reporting, vapor recovery, secondary containment, and other design, equipment, work practice and operational requirements which shall be applicable to all such devices and systems which are located at a facility which manufactures, stores or processes any such pollutant and which shall be adequate to assure the protection of human health and the environment.

"(4) PENALTIES.—Regulations promulgated pursuant to this subsection shall include penalties for the release of extremely hazardous air pollutants and the owner or operator of any facility or device which experiences any release, whether sudden or non-sudden, shall be liable to the United States for the payment of such penalties. The penalty with respect to any particular release shall be not less than $5.00 per pound of the extremely hazardous air pollutant released to the air and shall otherwise be determined under a formula established by the Administrator. In establishing the formula, the Administrator may consider factors including, but not limited to, the following—

"(A) the specific pollutant that is released and its relative toxicity; and

"(B) the class or category of the facility or device from which the substance was released.

The formula shall provide for increases in the amount of the penalty scheduled periodically and in relation to the quantity of cumulative releases from any one facility in order to create incentives for owners and operators to take all measures which will prevent releases.

"(f) STATE PROGRAMS.—

"(1) IN GENERAL.—Each State may develop and submit to the Administrator for approval pursuant to this subsection a program for control of emissions of toxic and hazardous air pollutants from stationary sources or for the prevention and mitigation of releases of extremely hazardous air pollutants from facilities in such State. A program submitted by a State under this subsection may provide for partial or complete delegation of the Administrator's authorities and responsibilities to control hazardous and toxic air pollutants and prevent the release of extremely hazardous air pollutants under subsections (c), (d) and (e) of this section. The Administrator may also delegate to a State the authority to enforce standards, regulations and requirements which the Administrator has established under such subsections.

"(2) GUIDANCE.—Not later than 12 months after the date of enactment of this paragraph, the Administrator shall publish guidance which would be useful to the States in developing toxic and hazardous air pollution control programs and programs to prevent and minimize the consequences of the release of extremely hazardous air pollutants. The guidance shall specify the procedures and standards to be used in establishing emissions standards for hazardous air pollutants, toxic air pollutants and other regulations and requirements applicable to the sources of such pollutants and to facilities which have the potential to emit extremely hazardous air pollutants. Such guidance shall at a minimum provide for permitting requirements for new and existing major sources of toxic air pollutants and all sources of hazardous air pollutants with emissions in more than de minimis amounts. The guidance shall also provide for the registration of all facilities producing, processing, handling or storing any extremely hazardous air pollutant listed pursuant to subsection (e)(2)(A) or (e)(3)(A).

"(3) CLEARINGHOUSE.—The Administrator shall establish and maintain an air toxics clearinghouse to provide technical assistance and information to the several States on measures, methods, practices and techniques effective in reducing the emission of toxic and hazardous air pollutants.

"(4) FINANCIAL ASSISTANCE.—Upon application of a State, the Administrator may make grants, subject to such terms and conditions as the Administrator deems appropriate, to such State for the purpose of assisting the State in developing and implementing a program or partial program to control the emissions of toxic and hazardous air pollutants or to prevent and minimize the consequences of any release of extremely hazardous air pollutants.

"(5) APPROVAL OF STATE PROGRAMS.—Not later than 180 days after receiving an air pollution control program or partial program submitted by a State pursuant to the provisions of paragraph (1), and after notice and opportunity for public comment, the Administrator shall either approve or disapprove the general procedures and authorities contained in such program. The Administrator shall disapprove any program submitted by a State, if the Administrator determines that—

"(A) the authorities contained in such program or partial program are not adequate to assure compliance by all sources within the State with each standard, regulation or requirement established by the Administrator under subsections (c), (d) or (e);

"(B) adequate authority does not exist, or adequate resources are not available, to implement such program or partial program;

"(C) the schedule for implementing such program or partial program and assuring compliance by affected sources is not sufficiently expeditious; or

"(D) the program or partial program is otherwise not in compliance with the guidance issued by the Administrator under paragraph (2) or is not likely to satisfy, in whole or in part, the objectives of this section.

If the Administrator disapproves a State program or partial program, the Administrator shall notify the State of any revisions or modifications necessary to obtain approval. The State may revise and resubmit the proposed program for review and approval pursuant to the provisions of this subsection. The Administrator shall not approve a State program or partial program that would establish a standard, regulation or requirement applicable to a source or category of sources of toxic or hazardous air pollutants or to a facility which produces, processes, handles or stores an extremely hazardous air pollutant which is less stringent than a standard, regulation or requirement issued by the Administrator under this section and which would be applicable to the same sources or facilities.

"(6) WITHDRAWAL OF APPROVAL.—Whenever the Administrator determines after public hearing that a State is not administering and enforcing a program or partial program approved pursuant to this subsection in accordance with the guidance published pursuant to paragraph (2) or the requirements of paragraph (5), the Administrator shall so notify the State and, if appropriate action is not taken within 90 days, the Administrator shall withdraw approval of such program or partial program. The Administrator shall not withdraw approval of any program or partial program unless the State shall have been notified and the reasons for withdrawal shall have been stated in writing and made public.

"(7) SAVINGS CLAUSE.—Nothing in this subsection shall prohibit the Administrator from enforcing any applicable emission standard under this section.

"(g) MONITORING REQUIREMENTS.—For the purposes of developing or assisting in the development of any standard, requirement or regulation, conducting any study, or enforcing the provisions of this section, the Administrator may require the owner or operator of any facility which emits hazardous or toxic air pollutants or which produces, processes, handles or stores any extremely hazardous air pollutant listed pursuant to subsection (e)(2)(A) or (e)(3)(A) to monitor for the presence of such pollutant in the emissions (both point and non-point) from such source and in the ambient air within the vicinity of the facility, to install and maintain leak detection systems and to keep such records and make such reports on the results of monitoring and leak detection as are necessary to discharge the duties and responsibilities assigned to the Administrator by this section.

"(h) RESEARCH.—The Administrator shall conduct a program of research, studies and investigations with respect to the sources, effects and control of toxic and hazardous air pollutants. In conducting such program the Administrator may encourage, cooperate with, and render financial and other assistance to appropriate public authorities, agencies, and institutions and private agencies and institutions in the conduct of research investigations, experiments, training, demonstrations, surveys, public education programs, and studies relating to the sources, effects and control of emissions of toxic and hazardous air pollutants. In carrying out the activities authorized by this subsection the Administrator shall give high priority to—

"(1) research with respect to the health and environmental effects caused by the release, concentration, deposition and bioaccumulation of toxic and hazardous air pollutants;

"(2) studies, surveys and investigations with respect to the exposure of persons to toxic and hazardous air pollutants;

"(3) studies and investigations of atmospheric processes that may affect the fate and transport of toxic and hazardous air pollutants after emission from a source;

"(4) methods and techniques for analyzing air samples for the presence and quantification of toxic or hazardous air pollutants;

"(5) methods and techniques for monitoring ambient air quality and emissions from specific sources of toxic or hazardous air pollutants to detect and quantify the presence of such pollutants;

"(6) methods and techniques for controlling emissions, whether intentional or unintentional, from sources or potential sources of toxic or hazardous air pollutants; and

"(7) the development of methods and techniques effective in reducing the quantity or toxicity of materials used in processes or activities which give rise to the emission of toxic or hazardous air pollutants.

SEC. 3. Section 105(a)(1) of the Clean Air Act (42 U.S.C. 7405) is amended by adding the following new subparagraph:

"(D) The Administrator may make grants to air pollution control agencies in an amount up to two-thirds of the cost of planning, developing, establishing, or improving, and up to one-half the cost of maintaining, programs for the control of emissions of toxic air pollutants, if the State program is approved pursuant to section 112(f) of this Act. There are authorized to be appropriated $35,000,000 in each of the fiscal years ending September 30, 1988, 1989, 1990, 1991, and 1992 to carry out the purposes of this subparagraph and section 112(f) of this Act.".

SEC. 4. No amendment to section 112 of the Clean Air Act (42 U.S.C. 7412) made by this Act shall affect any emission standard for a hazardous air pollutant which has been previously promulgated.

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CLEAN AIR ACT AMENDMENTS OF 1987

WEDNESDAY, JULY 22, 1987

U.S. Senate,
Committee on Environment and Public Works,
Subcommittee on Environmental Protection,
Washington, DC.

The subcommittee met, pursuant to notice, at 3:34 p.m., in room 406, Dirksen Senate Office Building, Hon. George J. Mitchell (chairman of the subcommittee) presiding.

Present: Senators Mitchell, Burdick, Stafford, Breaux, Simpson, Baucus, Lautenberg, Chafee, Durenberger, Symms, Pressler, and Graham.

Senator Mitchell. The hearing will come to order.

As in the past, we will begin with opening statements by members of the subcommittee, and then we will hear from Mr. Thomas and his associates.

I would begin, Mr. Thomas, by welcoming you. Thank you for coming. We look forward to hearing from you.

Because he has a prior commitment elsewhere, I would like to defer to the former chairman of our committee, the distinguished Senator from Vermont, and have him make his opening statement first, and then we will proceed in the regular order thereafter.

Senator Stafford.

OPENING STATEMENT OF HON. ROBERT T. STAFFORD, U.S. SENATOR FROM THE STATE OF VERMONT

Senator Stafford. Thank you very much, Mr. Chairman. You and my colleagues are very courteous, to allow me to go first. I wouldn't ask for it were it not for another commitment.

Mr. Chairman, and colleagues, this subcommittee, indeed this Congress, is at a critical juncture in our continuing struggle to clean up the air we breathe. We are about to hear Lee Thomas submit to us the official comments of President Reagan's Administration regarding the bill that 11 members of this subcommittee have spent developing over the last several months.

Actually, many of the provisions have been developed over a period of years, not months. The acid rain title of our bill dates back to 1981. The nonattainment provisions were developed in 1982. The title dealing with toxic air pollutants goes back to 1983. The title dealing with trucks and cars was started in 1984 and 1985.

It is important to recall this because there are those who say we are engaged in a rush to judgment. Even in Vermont, where we take some pride in avoiding haste, we do not consider deliberations that take 2, 4, or 6 years to be hasty deliberations.

Mr. Thomas is going to tell us that we have had "incomplete success" in our goal of achieving clean air. I agree. Indeed, that is why we are engaged in this exercise of once again amending the Clean Air Act. Actually, that phrase is a polite way of saying we have failed up to now in our effort to protect Americans from air pollution. The air which millions of Americans are breathing at this moment is dangerous to their health. There can be little doubt that right now there are men, women, and children who are homebound because it is unsafe for them to go outdoors, just as there is little doubt there are men, women, and children who are ill at this very moment because they fail to protect themselves against the hazards of air pollution.

We thought we would have been able to protect Americans from these circumstances, but we have not succeeded. We thought the bill we had been producing would be recognized as an effort to overcome our past failures. Instead, we are being criticized virtually across the board for our efforts. The mildest term used to describe our bill is that it imposes "measures that are not appropriate or necessary." Yet, we are forced either to take these actions or to allow Americans to continue to stew in a noxious mix of air pollution that blankets virtually all of our cities.

Over the last few years, several actions could have been taken that would have forestalled this day of reckoning. Some 20 areas that were supposed to attain the ozone standard by 1982 still are not in attainment and have yet to be required by the Environmental Protection Agency to implement inspection and maintenance programs or any other additional controls. No action has been taken to directly regulate toxic air pollutants. Requests to control interstate air pollution have been repeatedly rejected. Indeed, one of the things that this bill produced by the subcommittee seeks to change is EPA's pattern of deferring control decisions and air quality improvements.

I could go on, for the list, while not endless, is very, very long. Like most of the members of this committee, I have an extremely high regard for Lee Thomas, and it must be noted that he was not a participant in many of these decisions. Indeed, some might say that no Administrator of EPA was a participant.

In December of 1980, before he became director of the Office of Management and Budget, David Stockman wrote an article that appeared in the New York Times and the Washington Post. In the article he listed a number of the regulations that he targeted for, in his words, "regulatory ventilation." Most of those regulations dealt with the environment. His argument was that those regulations had to be repealed or weakened to avoid economic disaster.

Here is what he recommended, in his own words, quoting: "First and most urgent, a well-planned and orchestrated series of unilateral administrative actions to defer, revise, or rescind existing and pending regulations."

In hindsight, it seems that, with only a few exceptions, every one of those proposals to weaken or to repeal regulations has come to pass, and this started the journey that has led us to today's hearing.

If regulations had been issued and enforced to match the intent of the Clean Air Act, many of today's problems could have been avoided. But that didn't happen. So, now it is up to us to act.

To those who say there is no need for action, my response is that inaction got us where we are today. The Congressional Budget Office predicts, for example, that if we do nothing about them, emissions of sulfur dioxide will increase by 2.5 million tons annually in the next 12 years. And even to a man as poor at mathematics as I am, it suggests that if those figures are accurate, the loading of the atmosphere with sulfur dioxide will double over the present loading in the next 12 years. And throughout the northeast, the States are reporting resurgences of unhealthy air brought on by the hot weather. There have been 343 violations of the ozone standard recorded since May 10 of this year in just six States: New York, New Jersey, Connecticut, Rhode Island, Massachusetts, and Maine. Some of those violations have lasted for as long as five days.

How can anyone urge inaction in the face of estimates by Harvard researchers that from 2 percent to 6 percent of the excess mortality—and that is a quote—in the United States is attributable to air pollution? That would make air pollution comparable to motor vehicles as a cause of death in this country.

Those who want to do nothing or so little that it hardly differs from nothing might say that the decline in forest productivity and the widespread deaths of red spruce, oak, maple, white pine, and other trees throughout the east are either not real or are something caused by other than air pollution.

Or, they might say that even if all these things are supported by the evidence, as I believe them to be, that the costs of control of air pollution are too high. There is no doubt that the cost of air pollution controls is high. The Washington Post has told us recently that Americans spend about $30 billion a year on air pollution control. That is just about the same amount Americans spend each year on soft drinks and candy. EPA reportedly estimates that this current bill would add another $30 billion annually in costs. That is about as much as Americans are spending on cigarettes.

Perhaps that is the real issue here; namely, whether Americans are willing to spend as much money protecting themselves, their families, their lakes, and their forests from air pollution as they are spending on cigarettes, candy, and soft drinks.

This Senator not only believes that they are willing to do just that—that is, spend that much money—but they have already told us they want to. It is because of this conviction that this subcommittee has drafted the bill before us, which is 132 pages long.

Yet, with all of those suggestions, there is only one provision in the bill that the Administration says it can support without reservation; and that is, the proposed penalty for individuals who tamper with their car's pollution control system. That is disappointing, to say the least. Speaking for myself, I hope that this Administration will reexamine its position on this bill, and also its attitude toward air pollution control. Thank you.

Senator Mitchell. Thank you, Senator Stafford.

We are also pleased to have the present chairman of the full committee with us today. If there is no objection from any other member of the subcommittee, I will defer to our chairman, Senator Burdick, for his opening statement.

OPENING STATEMENT OF HON. QUENTIN N. BURDICK, U.S. SENATOR FROM THE STATE OF NORTH DAKOTA

Senator Burdick. Thank you, Mr. Chairman.

When I became chairman of the Committee on Environment and Public Works in January, I stated that one of the committee's major goals this year would be timely consideration of nonattainment, acid rain, and related clean-air issues. This committee has dedicated a considerable amount of its time and resources to the comprehensive reauthorization of the Clean Air Act. I expressed the hope that we would complete our work on nonattainment well before the December 31 deadline of the existing act.

It is appropriate that this committee should devote so much effort to the reauthorization of the Clean Air Act. This complex statute has not been reauthorized or substantially amended since 1977. The deadlines which we created in the act are upon us. We have learned a great deal about the Clean Air Act and its implementation over the past decade. We should use that knowledge to improve its effectiveness. In addition, new issues, such as acid rain, have emerged.

I commend the chairman of the subcommittee for the responsible fashion in which he has approached this vital legislation. Senator Mitchell's dedication to the work of this committee is evidenced by his scheduling late hearings to complete the subcommittee's work. Senator Mitchell has set a new standard as a legislative workhorse. I am grateful for his committed effort.

Since January, this subcommittee has held 15 days of hearings and heard testimony from 85 witnesses concerning nonattainment, acid rain, clean coal technology, and toxic air pollution. The hearing record is comprehensive. Individual committee members and staff have met with countless groups and individuals regarding air quality issues. Today's hearing marks the second occasion Administrator Thomas has appeared before the subcommittee to comment on pending clean air legislation.

Many of these issues are hardly new. We have attempted to enact acid rain legislation for years. With the impending nonattainment deadlines, this committee's failure to act responsibly could result in sanctions being imposed on communities comprising nearly half of the Nation's population.

The time for action is upon us. The simple fact remains: millions of Americans continue to be exposed to levels of air pollution well above health protective standards. This committee and the Congress have an obligation to reduce pollution exposure levels.

Once the subcommittee completes its work, we can proceed to full committee markup as soon as possible. This will allow ample time for the full Senate to consider this comprehensive legislation. I hope our colleagues in the House will move expeditiously on a clean air bill so localities have adequate time to consider and implement new attainment plans. Since January, Senator Mitchell and I had hoped that the Administration would come forward with specific recommendations. For the past 7 years, this Administration's environmental motto seems to be, "Do nothing at all costs."

Mr. Thomas, I have reviewed your testimony. I am sorry to learn you have remained reticent about developing a comprehensive clean air program at this time. A program that takes advantage of the accomplishments of the past 17 years, a program that is realistic and, above all, workable. I believe the legislative approach of the subcommittee is, on balance, a good one. The legislation recognizes that improved air quality in nonattainment areas will only come with comprehensive strategies that take into account even small sources of pollution. Most major pollution sources have been controlled. The task ahead of us will be much more difficult.

The legislation attempts to solve the complex problem of regional ozone transport. We should enact a comprehensive acid rain program this year. I have stated on a number of occasions that acid rain is a continental problem. I am happy to see the legislation retains my provision directing the President to negotiate the same levels of pollution controls in Canada as those we have imposed on our side of the border.

I came across an interesting statistic the other day that has bearing on the acid rain debate. In North Dakota there are a total of seven major powerplants. Every one of those plants has scrubbers and burns low-sulfur lignite. In 1985 we had sulfur dioxide emissions totalling 100,000 tons. By comparison, Ohio produces more electricity from coal-fired powerplants than any other State. In 1985 Ohio emitted a total of 2.2 million tons of sulfur dioxide. Only two powerplants have scrubbers in Ohio.

After the long debate concerning the trade bill, I hope my colleagues will pardon me for using this trite phrase again, it is time to level the playing field. If we are serious about acid rain, greater emissions reductions must come from areas that are the major sources of pollution. We should not penalize those States that have taken meaningful and costly steps to reduce the precursors of acid rain.

Mr. Thomas, I hope you will provide this subcommittee constructive suggestions concerning the pending bill. It is this committee's intention to enact a comprehensive bill this year. We would prefer to work with you. In that spirit, I appreciate your being with us this afternoon.

OPENING STATEMENT OF HON. GEORGE J. MITCHELL, U.S. SENATOR FROM THE STATE OF MAINE

Senator MITCHELL. Thank you very much, Senator Burdick.

The legislation to reauthorize the Clean Air Act has always been hotly contested. That is still the case. According to recent newspaper accounts, more money is being spent on lobbying against acid rain controls than on any other single legislative issue before the Congress, more than is spent lobbying on taxes, more than is spent lobbying on health care, on defense, or on education. And acid rain is just one of three major clean-air issues we are addressing in this legislation.

The debate generated by opposing interests is healthy, important in a democratic society. From it we learn to appreciate the merits of opposing arguments and the flaws in our own. Good ideas should be able to withstand this kind of scrutiny.

The intense debate over the pending legislation might have been mitigated if we had selected a more modest approach addressing only nonattainment. It is no secret that I would prefer flexible legislation that sets out a clear goal with specific sanctions for failure to achieve that goal. In this instance, a simple extension of the deadline, another extension, with clear sanctions, could have provided that flexibility.

But as the history of the Clean Air Act makes painfully clear, flexibility itself is not a panacea. Flexibility in the 10 years since the act was last reauthorized has left over 100 million Americans breathing unhealthy air. There have been improvements in air quality, to be sure. But these gains are diminished by our added knowledge of the adverse health effects of air pollution at lower levels of exposure, and they will be diminished further by ongoing and future growth.

We may well be on a path toward cleaner air. But we may fairly ask when will we arrive. The existing flexibility in the Clean Air Act means that EPA, State and local Governments set the pace. In some cases, progress has been real and steady. In many others it has been neither.

It was the failure of the flexible approach that led Congress to enact the original Clean Air Act in 1970 and the major amendments to it in 1977. It is the continuing failure to achieve our common objective of improved air quality that brings us back to the issue today.

Over and over again, in other environmental statutes, the Congress has found it necessary to require the EPA to take specific steps by certain dates in order to move this country toward a cleaner environment. For example, in the Superfund amendments and reauthorization act of last year, the Congress required the EPA to begin remedial actions at 175 facilities within three years. This requirement has pressed EPA to begin more remedial actions than would otherwise have been the case. In this and other legislative areas where Congress has been at all ambiguous, the requirements have not been fulfilled.

This history has been repeated with the Resource Conservation and Recovery Act, the Safe Drinking Water Act, the Clean Air Act. In the Clean Air Act, the only progress on mobile source controls has been as a result of congressional or court-ordered requirements. As an example, the only new mobile source standard to be released by EPA since 1980 has been the nitrogen oxide standard for heavy-duty vehicles. EPA proposed the standard in 1981 and a final rule was issued on March 15, 1985, under a court-ordered deadline. In this instance, the absence of a congressional deadline meant that the court imposed the deadline.

No sinister motive is at work in these cases. In setting priorities, it is a common fact of life that the most precise requirements with the clearest penalties will receive a higher priority than goals which are merely voluntary or objectives to be sought without penalty. Those who determine what will occur with the agency's resources must respond to these requirements. It is the responsibility of Congress to set these priorities, as needed.

The pending legislation restates an obvious fact: this Nation must make a stronger effort to clean up our air. That is the simple, fundamental purpose of this legislation. Based on extensive hearings held by this subcommittee, I am convinced that more aggressive controls are necessary to achieve what we all want, cleaner air, in a timely manner.

I find support from the EPA's own report entitled "Unfinished Business." That report found that air pollutants such as ozone, carbon monoxide, sulfur dioxide, and oxides of nitrogen rank relatively high in three of the four risk types assessed by the agency. Hazardous air pollutants as well as indoor air rank relatively high in cancer and noncancer health risks. Air pollution is ranked so high as an outstanding problem because of the involuntary exposure of millions of Americans to unhealthy air and the adverse effects on crops and forests.

Over and over again, in public opinion polls the American people have demanded cleaner air. The pollster Louis Harris said of his poll results on the Clean Air Act—and I quote — "This message on the deep desire on the part of the American people to battle pollution is one of the most overwhelming and clearest we have ever recorded in our 25 years of surveying public opinion."

In early 1987 the Gallup organization found that 70 percent of the respondents said that the Government is not doing enough to combat acid rain. In March of 1987 a survey for Time magazine found that 73 percent of those questioned favored increased Government spending to protect the environment, ranking second only to health programs for the elderly.

In 1986 the Harris poll found that air pollution was ranked a serious problem by 75 percent of those surveyed. Harris said of air pollution control, and again I quote, "The public, by and large, does not believe that a straight trade-off between economic growth and pollution control effort is necessary or even real."

But even when such trade-offs are assumed, the public continues to support air pollution control. In 1986 82 percent of those questioned rejected the option of keeping factories open to save jobs if to do so endangered public health.

Despite the testimony and the clear voice of public opinion in this country, there is opposition to any effort to increase air pollution control. This committee has heard for seven years a consistent, unswerving line from administrators of the EPA that it will take years before we will know enough to decide whether and how to control acid rain. I believe, and I hope a majority of the members of this committee agree, that we know enough now to do so.

Similarly, we will undoubtedly hear from the EPA today that no new initiatives shall be taken by Congress if they encroach at all on the agency's flexibility. I believe the magnitude of the existing environmental and health risks, combined with the record of the past decade, justifies the control set forth in the committee's working paper.

This legislation is intended to move this country forward toward attainment of clean air by specific dates and through specific methods. Without question, adjustments will be necessary. This is not a perfect bill. It will have to be changed in some respects, and I expect that it will be changed. And we welcome the advice of the

EPA and any other interested party in improving what is admittedly an imperfect human effort.

But the same old refrain—calling just for more time, more flexibility, don't do anything now—will not be adequate to the task. Every area of this country, with the possible exception, indeed the certain exception of southern California, should be able to meet the ozone standard of the Clean Air Act within 10 years. I expect areas throughout the country to commit to that, or an even shorter deadline, and I expect that the Federal Government will have to continue to be an active partner in achieving that goal. To accept less than that will deprive Americans and their children of the right to breathe clean air.

Now we will proceed with statements in order of appearance by the members. The next Senator we will call on will be Senator Breaux of Louisiana.

OPENING STATEMENT OF HON. JOHN B. BREAUX, U.S. SENATOR FROM THE STATE OF LOUISIANA

Senator BREAUX. Thank you very much, Mr. Chairman. I will be very brief.

I thank the EPA representatives for being with us. I thank the chairman for scheduling the hearing.

I am not sure why you weren't here before. It's kind of unusual. We have already reported this bill with the exception of one title, and you are not coming to testify about it. I am anxious to hear what all of you have to say.

I think that I have some concerns about flexibility and I think that they need to be addressed. I know that some of the things that may be needed for Louisiana may not be needed for Vermont or for Montana or for some of the other States in our Nation in order to reach the same goal. I think that if we are going to get the States to do all of this, we are going to have to give them some kind of flexibility in doing it.

Also, I am uncertain of the numbers that we have in the bill. I am not a scientist nor am I an expert in this area, in the sense of I don't know whether 0.25 or 0.35 is needed. I think we have to have some flexibility with regard to the regulations on what is a proper and an appropriate standard in many of these areas.

We can write a bill that will guarantee totally clean air. It's a question of how we balance that in a society that also needs to have jobs and industry. If we put a five-mile-per-hour speed limit on the interstates, we could probably reduce deaths on interstate highways 99 percent. It's a question of at what cost to society do we set these standards. I think there has to be a proper and appropriate balance.

Another thing, Mr. Chairman, as we try to write this final product, I am really concerned that there are those who would argue that any changes means you're for dirty air. There is nobody on this committee who is for dirty air. I really reject the argument that if we want to change a dot or a comma or a semicolon, that somehow we are on the side of dirty air. That is not, I think, the proper way of looking at this process at all. We ought to try to come up with something that is workable, that is doable, and that comes up with clean air for everybody. So I am anxious to hear what they have to say. Thank you.

Senator MITCHELL. Thank you, Senator Breaux.

I would just note that the reason that Mr. Thomas is here today is that we had three days of hearings on the legislation prior to the markup. Mr. Thomas was invited to attend any one of those three that he wished to do so. Because of his schedule and because he felt that there was not enough time to prepare for the hearings in view of the short time which the bills have been proposed, he asked that a separate, special hearing be set exclusively to hear him. And I accommodated his request.

Senator Simpson.

OPENING STATEMENT OF HON. ALAN K. SIMPSON, U.S. SENATOR FROM THE STATE OF WYOMING

Senator SIMPSON. Mr. Chairman, I appreciate the fact that you have called this hearing to allow Lee Thomas and his people and his staff to give us their concerns, to give us their opinions about the bill that we have. That is the very essence of your activity, and that is fairness. You could have rejected that offer.

I think it's very important that he is here, because he has been most helpful to us on all things that I have dealt with in this committee: RCRA, clean water, superfund. I expect that effort to continue. Mr. Thomas has credibility, and he is able to say things here that are not pleasing to some but that have never been rejected with any faked figures or cooked stuff. I think that is very important. I thank you for that, Mr. Chairman. It is the very essence of your fairness.

I hope that you and I and others can continue to try to negotiate an acid rain bill within this structure; an acid rain provision that we can get some moderate or at least thoughtful or passable bill through this year. I have some serious concerns about the 50-State approach used. I have some concerns about the 12-million-ton target, which in actuality is a 14-million-ton reduction. I will continue to search for common ground with regard to those issues.

Mr. Chairman, I don't want to be long. But I have been here 8½ years now, and I have watched us mess around with clean air. We had a clean-air commission. We should have taken their recommendation at one time. That might have been an awfully good place to start. We were all ready to do that once, way back in the weeds, but it wasn't good enough and tough enough for those who rattle the cage around here more than any other group. It wasn't pure enough for them.

This is the first time I have said this the whole session, so now don't throw anything, Frank. [Laughter.]

They have an extraordinary access to the staff which is beyond comprehension, and that is the staff of both the Republican and the Democrat and the "professional staff." It's an overweening and overwhelming activity. Now, I have said that, and I won't say that again. [Laughter.]

But I am very disturbed that most of the provisions in this bill are not backed by any sound scientific reasons. They have no sound scientific basis. They have a marvelous basis in emotion. That is where this staff goes awry many times. This is a potpourri of old stuff. It isn't just back in 1982 or 1983, George, this is back in the 1970's. This is stuff that 132 pages are made of; boy, I wish I had done this. And here it is one more time. This is why we never pass anything with regard to air issues.

It is not Ronald Reagan. I really must say I tire of listening to the fact that it is this Administration or Ronald Reagan that is preventing us from passing something about acid rain or clean air. It's Congress that does that because we crank up a bale of stuff here that would choke a horse. It's totally unrealistic. We have all learned to do with it. Vote for it unanimously and get that turkey out of here so that we don't have to suffer all the pain. [Laughter.]

It's funny, but it ain't funny. So we don't have to suffer all the pain of getting hammered for 4 or 5 or 6 months while it just rots at the desk. The reason it rots at the desk is not because of Ronald Reagan or Lee Thomas or the Administration. The reason it rots at the desk is that there are about five States in the Union that would have to shut up shop. West Virginia happens to be represented by the majority leader of the United States Senate. Until somebody gets realistic and realizes that, then let's quit prattling about the Administration.

Robert Byrd's State is dependent upon a thoughtful acid rain bill. Ohio, with Howard Metzenbaum and John Glenn, is dependent upon some sensible legislation. Illinois, represented by Senators Dixon and Simon, is dependent upon something thoughtful. Missouri, with Kit Bond and Senator Danforth, and Indiana, with Senators Lugar and Quayle, is dependent upon something thoughtful. And they never see it as it gets to the desk of the United States Senate and just roosts there.

So until somebody gets sensible and does it here, then at least let's not have the breast-beating and the magnificent speeches, because that will not bring it to life. Common sense will bring it to life, something authentic, something fundamental.

There are things in here with nonattainment and toxic air pollution that are fundamentally changing the nature of all Federal-State relationships developed during the Clean Air Act. We don't need to alter that. Ozone nonattainment, sure, it's a critical issue and indeed we're going to have to let some areas have it and do something there. Automobile emissions, those are critically needed. But we've got limits here on industry and other business activity which is absolutely absurd. Nonattainment doesn't apply. Provisions with offshore oil and gas, section with hydrocarbon emissions from various industrial processes, use of paints and coatings, you couldn't possibly figure out what to do with that anywhere, any time.

But the most onerous—and then I am going to shut down—is the EPA setting a number of new national ambient air quality standards. It requires them to consult with the clean air scientific advisory committee. We put that in there before reviewing and revising standards, and I think it would be terribly ill-advised to allow and require, even, the EPA Administrator to circumvent that process to promulgate standards without adequate scientific consultation with the scientific advisory board. And that cannot solve the thing.

But, I know how we got here. I sure do. My institutional memory now, I guess, is as long as anybody's. Until we're realistic and we use common sense, we will get nothing done. Nothing. Absolutely nothing.

In our rush to judgment, I don't think we have failed. We have done some extraordinary things with clean air in the United States. Now to say that we have done nothing is absolutely absurd. My State has conditions six times more stringent than the Federal Government's. I get a bellyful of listening to that stuff. Why don't you all get aboard and do it as tough as we do? I am tired of being portrayed as some black-suited rascal that wandered into town to defile America just because you don't go for a package that is so absurd there is no way you can go for it ever.

How we got into the chemical list I do not understand. How we've gotten out of the list where we're going to take in this bill regulating chemicals listed in the Superfund community right-to-know section, which was a terribly destructive and tough thing. And you helped. It wouldn't have been done without you, George. We would never have gotten through a Superfund conference without George Mitchell and his common sense. Now that's what we're going to need in this one. But we don't need to go to community right-to-know provisions under Superfund here. It doesn't even fit.

But I know the staff, and it fits back. If you have to be an atomic scientist to figure where they have gone to get back to some bill we passed in 1972, and if you miss one sentence or one paragraph, you will immediately—talk about back to the future, you will be in it, right back in that. [Laughter.]

And you won't know how you got there.

I am just not going to sit and watch that happen this trip. But there are five States on the floor of the U.S. Senate represented by some pretty potent Democrats and Republicans that aren't going to have one thing to do with this little package.

Senator MITCHELL. Senator Baucus.

Senator BAUCUS. Thank you, Mr. Chairman. [Laughter.]

Thanks a lot. [Laughter.]

Senator MITCHELL. In showbiz, that was known as the warmup. [Laughter.]

OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator BAUCUS. Mr. Chairman, while we are all waiting to hear Lee Thomas, I think it is important to set a little bit of a perspective on this. I very much appreciate and respect the comments of my good friend from Wyoming, a neighbor State of mine. But I think that although the Senator's comments are very entertaining and humorous, in fact they tend to miss the mark here. I think the American people very much want a tougher Clean Air Act. I don't think there is much doubt about that. And that really is the main goal that we should be focusing our attention on.

It is easy to be distracted by, and it's tempting tc be distracted by, various provisions, minor provisions and not-so-minor provisions in the bill, or by some other extraneous observation. But the main goal here is to try to satisfy what I think, and I think most people think, is the wishes of the American people; that is, a significantly tougher Clean Air Act, particularly as to the problems with ozone, nonattainment, acid rain, and toxic substances. There is a major concern in America that we still are not cleaning up our air as much as we should.

Second, I think that States want a tougher Clean Air Act. I have been very impressed with the testimony of State administrators who have sat at that table not too long ago, who time and time again told this committee that they want a tougher Clean Air Act. The States want a tougher Clean Air Act.

Third, I think there is abundant evidence that it can be done. No major effort is easy. All major efforts are difficult. But we have to make ourself face the task and do the very best we can. For example—and I know anecdotes are sometimes not as instructive or illustrative as they could be—but my State of Montana, two major powerplants have recently been built, with a total of about 1,500 megawatts of power. It cost about $1.2 billion. About 25 percent of that cost was for environmental regulations that the State of Montana passed. The fact is that we in Montana meet 0.07 pounds of sulfur dioxide per million Btu's. That is about 100 times cleaner than the standard in this bill that we are facing today.

Montanans pay the bill. They want it. We're not complaining. It can be done. It is done. So this bill is based not on emotion. The basis is fact, and the basis is history. It can be done.

I understand that, sure, we are a low-sulfur coal State. West Virginia has lots of low-sulfur coal, by the way. West Virginia is not only a high-sulfur-coal State. There is low-sulfur coal in West Virginia. The fact is that the Administration is the one here who is tossing cold water and trying to obfuscate the passage of this bill, and testifying against the bill.

It is true that other States have different interests. But I think that the goal here should be for the Administration to say, yes, we want to work with the Congress and pass the bill, just as I am sure that Senators from Ohio, Missouri, and the other States mentioned, they want to pass the Clean Air Act bill, too. They want the constituents, the people in their States to have cleaner air. There is no doubt about that. They want to work out the regional differences. So what we should be doing here is not trying to pick this bill apart, not try to make fun of it, but basically trying to do the very best we can and take up the challenge and pass the Clean Air Act.

Senator SIMPSON. I am ready.

Senator BAUCUS. I hope that we all do that.

Senator SIMPSON. I am ready.

Senator BAUCUS. Thank you.

Senator MITCHELL. Thank you, Senator Baucus.

Senator Lautenberg.

OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator LAUTENBERG. Thank you, Mr. Chairman. As one of the cage rattlers that my friend from Wyoming I think indicated I might be, I do want to kind of set the record straight a little bit, especially coming from a State that has more horses per acre than any State in this country—that's the truth—New Jersey. We don't produce much coal, but we do have wildlife there, and we like a clean environment. We even like our horses to breathe clean air.

I would have to say, Mr. Chairman, I think this has been a very serious approach. I think we have been moderate. I really do think that New Jersey ought to be included in those States that want a thoughtful process to emerge. Senator Simpson forgot to include us in those States where the thoughtful bill is desired.

I want to commend you, Mr. Chairman, for holding this hearing, and I want to thank Lee Thomas for participating. I also want to make sure that the record is clear that Lee Thomas joins us for the second time this session. His previous testimony and this participation come amidst many months of hearings on air issues.

To the credit of the chairman, these months have been marked by careful deliberation, by attention to many perspectives, by dialogue and engagement with many interested parties, by a goal of producing improvements to current law, and we have met that goal. We have completed markup of solid measures on ozone nonattainment and acid rain—not in willy-nilly fashion—and next week we are going to be concluding consideration of a much needed air toxics measure.

While the subcommittee has moved forward, EPA appears to have moved rapidly to the status quo. Lee Thomas indicated when he testified in April to that effect. His written testimony—I don't want to be unkind; I have a lot of respect for Lee—confirms that his judgment and that of EPA differs substantially from that which has come out of the careful consideration of this legislation.

With all due respect to Mr. Thomas, I feel his position is out of tune with the facts.

Most people, contrary to some of the statements that were made, feel that acid rain is a threat to this country. Much of the country is going to miss the ozone nonattainment deadlines, and air toxics continue to threaten our health and safety. Now, admittedly, Lee Thomas is an able advocate, and he never fails to impress us with his knowledge of the issues, and we welcome his views today. But what we need is action, not to stand still. And what we need are tougher laws, not more reliance on an EPA that is not meeting emissions that is agreed on by so many other parts of Government.

Mr. Chairman, I look forward to working with you to strengthen our clean air laws, and once again commend you for your leadership in moving this along.

Senator **Mitchell**. Thank you, Senator Lautenberg.

I will now call on the former chairman of this subcommittee, who for 6 years did so much to protect the American environment, Senator Chafee.

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator **Chafee**. Thank you very much, Mr. Chairman. I want to commend you for pressing forward with this legislation under very difficult conditions with so many urgent demands on your time.

I especially want to thank you for arranging to have Mr. Thomas back here. As you mentioned yourself, there was a difficulty in scheduling this, and you went out of your way to even schedule an evening meeting tonight, which fortuitously was avoided.

Senator MITCHELL. Not yet. [Laughter.]

Senator CHAFEE. That's right. That's right. We did assemble at 3:30 to hear from Mr. Thomas, so I will be brief. [Laughter.]

I will just say that this is a complicated bill we have before us. But I must say, Mr. Thomas, I really seek more constructive advice than you have been able to give us so far as I look over your statement. If you look on pages 12 and 13, when we deal with the regional transport matter, which is a great problem to us in the northeast, we are told that we ought to drop the regional solution that we have there, but I find no alternative suggested. That leaves us nowhere.

So it is with the suggestion that we are overregulating, and the Administration is charged with underregulating. I myself would prefer to err on the side that guarantees the protection of health and the environment. And the Administration, not you but the Administration, certainly hasn't been very helpful with the major environmental legislation that we have dealt with in the last 7 years. They tried to rewrite the Clean Air Act, virtually repealing the law. The Administration vetoed the Clean Water Act, as you recall, and threatened to veto Superfund.

You have been a big help to us. I particularly want to commend you, Mr. Thomas, for your help within Administration circles for the help on the tough position on the chlorofluorocarbons and protecting the stratospheric ozone layer. I think you deserve a lot of credit for that.

But we do have a problem with clean air, and we have just got to have some help from the Administration as to what they want. It's not enough to be against things. In my own State we are trying to cope with air that is unhealthy on certain days of the year. Those are the facts. We monitor that. We knew this 10 years ago when we amended the Clean Air Act to address these problems.

So, Mr. Chairman, I commend you for your efforts, and I do urge Mr. Thomas to modify his statement by interposing constructive solutions where he has said our proposals aren't the right ones. Thank you, Mr. Chairman.

Senator MITCHELL. Thank you, Senator Chafee.

Senator CHAFEE. You will note that that was three minutes or less.

Senator MITCHELL. Very good.

Senator Durenberger.

OPENING STATEMENT OF HON. DAVE DURENBERGER, U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator DURENBERGER. Mr. Chairman, Mr. Workhorse, this noon at lunch, our colleague from Wyoming was telling Bob Stafford stories. One of them—this is a short one—is about the out-of-towner who was traveling through Vermont. He was headed for Burlington, and he comes into this small town, and he's right in the heart of the town. There is a fork in the road, and it says Burlington this way and it says Burlington that way.

So he gets out of the car and he finds some old-timer there and he says to him, "Well, does it make any difference which road I take?" The old-timer says, "Not to me it don't." [Laughter.]

Every once in a while when Alan makes one of those speeches, I get the misimpression that it don't make much difference to him which way we go with this legislation. I know from 8½, 9 years of experience now that really isn't true.

As I read Lee Thomas' testimony today, I suppose one might get the same impression from the Administrator of EPA that it don't make much difference to him either which way we go.

So I was sort of searching for a rationale as to why we ought to move in some direction, and I thought of the example of my own capital city in Minnesota. I know there is a lot of things we can talk about in this bill, but because we usually brag up our home States and we say they're thoughtful and want thoughtful bills and so forth. My capital city of St. Paul is a nonattainment city under current law. It will not attain the carbon monoxide standards by December 31 of this year, as required by the Clean Air Act. In fact, the city is very seriously out of compliance. The so-called design value for St. Paul has been more than 60 percent above the standard. The standard is nine parts per million carbon monoxide in the ambient air, and St. Paul gets up to 15. And noncompliance occurs frequently.

In the data that EPA uses, one monitor in the center of the city, which is at Snelling University, for all of you experts on St. Paul—and you will all be experts because it's right next to the State fairgrounds and that is where the 1996 Olympics are going to be held.

But at that monitor they exceeded the standard by 33 times. More recent reports than this one show that improvements in air quality haven't been made. So from this description I think people here would get the impression that St. Paul has a serious air quality problem. And in a sense that the air is very polluted very often, it does.

But you wouldn't be right if you thought that the city had made some extraordinary effort to reduce the pollution levels and fell short, because St. Paul has absolutely or almost no carbon monoxide control plan at all. They have no inspection and maintenance program implemented in the Twin Cities, although it is widely understood that I&M can make a difference in CO levels. Apparently, there have been some preliminary discussions of I&M, but it's not in the planning phase or anything right now.

Transportation control measures for the Snelling University area were not implemented until just this past spring, and even then they amounted to no more than retiming stoplights and banning on-street parking.

So the people of St. Paul frequently breathe unhealthy air, but virtually nothing has been done to correct the problem. And St. Paul, like a lot of other cities, floats along, hoping that Federal vehicle controls or something else would show up to save them from the tough decisions they ought to be making to reduce CO levels. Nothing like that has come along, so it is now apparent that nonattainment will reach beyond the end of this year.

The mayor of St. Paul has written me a letter asking that I find a way to save his citizens because they are my constituents, from the sanctions for nonattainment under the Clean Air Act.

So when we talk about this problem, we say the city of St. Paul is in nonattainment. But there are three parties who are failing to meet the requirements of the law: the city of St. Paul; the State of Minnesota, which controls the air quality planning process for the city; and the Environmental Protection Agency, which is charged with implementing the Clean Air Act.

The Clean Air Act does not say that St. Paul has until December 31, 1987, to meet the standard for carbon monoxide. That is just a date when sanctions are imposed. The air in St. Paul should have been cleaned up a long time ago, and I am convinced that the EPA had all the authority necessary to bring St. Paul and dozens of other cities not in attainment with ozone and CO standards into compliance with the requirements well before this point in time.

But the Clean Air Act also gave everybody—EPA, the States, the cities—the flexibility to float along, hoping something else, something easier, would come up. So in many areas, steps that could have been taken have not been taken, and the air in the heart of St. Paul remains unsafe.

In the next few minutes we are going to be listening to the Administrator make a very strong statement in opposition to the bill that is before us. He will say, as others have said, that it is inflexible. He will say it costs too much. He will say it undercuts the proper role of State and local Government in implementing the Clean Air Act. And he will say that it ignores science. Well, science says the air in St. Paul, Minnesota, is unhealthy. For the last 10 years the State and local Governments of Minnesota have known that they had a responsibility to solve that problem. The last 10 years, EPA has had the tools necessary to work with the State of Minnesota and the city of St. Paul to improve the air quality, and little has been done.

So it is unfortunate that a subcommittee of the United States Senate has to design a carbon monoxide attainment program for the city of St. Paul, because we will not—and I agree with my colleague from Wyoming—will not do it very well, I suppose, and we are going to be subject to criticism, and, apparently, by some of the very people who have had the responsibility for assuring attainment over the last 10 years under current law.

But, Mr. Subcommittee Chairman, and my colleagues, I believe we're going to get it done. The small efforts that will make a difference, steps like I&M, are going to be mandated in the law.

Thank you, Mr. Chairman.

Senator Mitchell. Thank you, Senator Durenberger.

Senator Symms.

OPENING STATEMENT OF HON. STEVE SYMMS, U.S. SENATOR FROM THE STATE OF IDAHO

Senator Symms. Thank you very much, Mr. Chairman. I will be very brief. I appreciate your courtesy enabling me to sit in on this subcommittee, which I am not a member of, but I am very interested in this subject.

I have had the opportunity to look through the Administrator's testimony, and I find myself in agreement with a great deal of it. I also find myself in agreement with the concern that has been expressed by many responsible people and, I think, people that do have good scientific data and background that support some of the criticisms that Mr. Thomas has made before and I assume he will make some of them again today.

Mr. Chairman, I want to say that my State has achieved attainment, and we have probably some of the cleanest air in the country and we are very interested in preserving it and keeping it that way. But I think my concern is based on this degree of the last particle that we try to remove as to how much does it cost and what that means in terms of competitiveness, employment factors, and so forth.

My good colleague from Wyoming's statements was music to my ears to hear him say these things. I just have to correct, Mr. Chairman, one thing that he said. He gave that same inspirational speech, or a speech similar to that, a few years back when I was a new member of this committee and not as experienced in the ways of the Senate, how oftentimes things happen here that go over what the plan was. His plan was that we all vote for the bill and send it over to the floor and there would never be anything come of it because this bill was so bad. But he gave this great inspirational speech, and I just have to correct the record. It didn't have to pass the committee by unanimous vote. Because I was so inspired by Senator Simpson's speech, when he was out of the room, I voted no. We all left, and he came back and voted yes. [Laughter.]

So that is a good Al Simpson story to go with this. But the air is still clean in Boise despite the outcome of the vote. Thank you.

Senator MITCHELL. Thank you very much.

If there is no objection, the opening statements of Senators Pressler and Graham will be included in the record at this point.

[The statements referred to follow:]

OPENING STATEMENT OF HON. BOB GRAHAM, U.S. SENATOR FROM THE STATE OF FLORIDA

Mr. Chairman, I would like to commend you for taking time out of your very busy schedule to hold this important hearing today. I want to also thank Mr. Thomas for making time to be with us to discuss his perceptions of the clean air bill before our subcommittee. We are reviewing a bill today, a part of which addresses nonattainment of ozone and carbon monoxide. This portion serves a dual purpose—that of extending the December 31 deadline for those areas that will not achieve attainment this year—and in so doing, that of requiring more stringent controls in those areas to assure attainment within the appropriate extension periods.

Many of us have attempted over the last five years to institute controls which we hoped would bring us into attainment, improving our air quality significantly. However, we missed the mark, some by a low and some by a high margin. As we approach December 31, 1987, we also approach a new era of air pollution control—one in which we must take on additional control measures if we are to fulfill our obligation to protect human health and the environment.

There are two additional signficant provisions to this bill, which include acid rain and air toxics controls. We find ourselves at a point at which the adverse health effects of air pollution can no longer continue at present levels. In Florida, a large percentage of the population is comprised of sensitive groups—particularly the elderly and the young—who are more susceptible to the adverse health effects of air pollution. Florida is also a State in which outdoor activities are abundant, exposing a greater number of the population to these effects—and increasing exposure to more dramatic effects due to higher respiratory activity.

I commend the chairman and members of the committee for the hard work that has gone into drafting this worthy bill. I believe it provides an excellent basis from which we can begin to address more adequately the air pollution controls that are necessary for the protection of our public health and the environment. Thank you, Mr. Chairman. I look forward to an informative discussion with Mr. Thomas today.

OPENING STATEMENT OF HON. LARRY PRESSLER, U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

Mr. Chairman, I thank you for scheduling this hearing to allow Lee Thomas, the Administrator of the Environmental Protection Agency, an opportunity to testify on the clear air bill currently before the committee. It is unfortunate that Mr. Thomas could not testify before the subcommittee marked up the bill.

On several occasions I have expressed my concern about the economic cost of various proposed environmental programs. An editorial in Monday's Washington Post did an excellent job of illustrating this point. The editorial pointed out that last year Americans spent approximately $77 billion for clear air, water and waste disposal. Eighty percent of these funds is spent by the private sector. The cost of environmental programs is approximately equal to 2 percent of our nation's GNP. It is critical that we work to see that the money currently being spent is used in the most effective manner.

We must also be careful that the environmental protection burden on various industries is not so harsh that it makes them uncompetitive. For weeks the Senate has been debating the trade bill. One of the primary focuses of that legislation was to make U.S. industries more competitive. Placing unrealistic environmental regulations on U.S. industry could undo may of the provisions in the trade bill and other bills to assist U.S. industry. We need to know the economic cost of the various provisions to determine whether they are realistically achievable. Setting a goal which no one can achieve does not benefit the environment or the economy. The goals we set must continue the progress that has been made in cleaning up the air, but in a more realistic manner. We cannot clean up the air by forcing various industries to relocate to foreign nations. This will result in cleaner air but no jobs. This commitee must walk a very fine line.

I am also concerned about the impact of some of the regulations being imposed on small businesses and individuals. Large corporations carefully follow environmental regulations and laws. However, a small businessman in South Dakota does not have the time, resources or the ability to do this. The legislation we are considering could have a dramatic impact on these small businesses. The toxic air pollution system could have a dramatic impact on, for example, a fertilizer dealer in a small town in South Dakota. Unrealistic regulation of this small business could put him out of business and affect hundreds of farmers. These potential impacts must be considered.

I hope Mr. Thomas will be able to give the committee some evaluation of the economic cost of the various proposals, their impact on small businesses and whether the proposals are realistic. I look forward to hearing Mr. Thomas's testimony.

Senator MITCHELL. Mr. Thomas, thank you very much for your patience. As always, the subcommittee looks forward to hearing from you.

STATEMENT OF HON. LEE M. THOMAS, ADMINISTRATOR, ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY FRANCIS S. BLAKE, GENERAL COUNSEL; ROB BRENNER, DIRECTOR, CLEAN AIR LEGISLATIVE WORK GROUP; DON R. CLAY, DEPUTY ASSISTANT ADMINISTRATOR FOR AIR AND RADIATION; RICHARD D. WILSON, DIRECTOR, OFFICE OF MOBILE SOURCES; AND GERALD EMISON, DIRECTOR, OFFICE OF AIR QUALITY PLANNING AND STANDARDS

Mr. THOMAS. Thank you very much, Mr. Chairman. Let me first introduce my colleagues. Starting on my right is Jerry Emison, who is Director of our Office of Air Quality Planning and Standards which is the office that both sets standards under the Clean Air Act and works with the States in implementing those standards. Next to him is Don Clay, who is the Deputy Assistant Administrator for Air and Radiation for EPA. To my immediate right is Frank Blake, my able General Counsel who defends me from all those people who sue me constantly.

On my far left is Dick Wilson, who is Director of our Office of Mobile Sources, thereby setting the standards and managing implementation of those standards on cars, trucks. On my immediate left is Rob Brenner, who is in our air office staff and is Chairman of our Clean Air Working Group that has been working on issues associated with the Clean Air Act.

Mr. Chairman, you have a copy of my written statement. Your staff has had it a couple of days. If that was introduced into the record, I would just like to summarize and highlight that statement.

First I would like to say I very much appreciate your scheduling this hearing and giving me the opportunity to testify on the overall legislation as well as try to respond to questions. As you have indicated, during my previous testimony, we talked in particular about ozone and acid rain. As most of you know, we have had many opportunities to discuss these issues since I become Administrator of EPA nearly three years ago.

Before I talk specifically about this legislation I would like to say that I think we all pretty much share common goals. I am in favor of clean air. You are in favor of clean air. I don't think there is much doubt about that. I think where we differ is, one, on history, and two, on the future. I think there has been a hell of a lot of progress made in this country on cleaning up the air.

Some of the problems we face have certainly been tough and we haven't made the progress that we would like to have made. On other problems, we have made very considerable progress for which we should be proud. We need to say that there is a base here that we are starting from which is the result of 15 years of hard work by people at the Federal, State, and local levels in cleaning up the air. That is not to say there is not more to be done. That is what we are talking about: how much more needs to be done, and where.

That is where I think we differ on the future then, and that is this legislation, how to go about getting there. I start from the position, and as I have administered the Clean Air Act—and I must tell you, the amount of time I spend on looking at proposed regulations, working on implementation of those regulations, making decisions in our Agency, a good portion of it is on clean air issues. I feel like the existing law has served us—has served me for three years—well in making those decisions.

They are not easy decisions. I announced two this morning that are fairly consistent with what you are doing in your bill, dealing with ozone. One is on fuel volatility, for which I proposed setting an overall national program. The second one, which was on refueling emissions from cars, I proposed an overall nationwide program for on-board controls on cars.

Those two issues I have worked on for two years. I can't tell you how many sessions I have spent with my technical staff and my scientists working through those issues. We put the proposed regulations out for comment. They are very comprehensive technical standards, and now we have got to go through an intensive process of looking with the public at whether we were right or not, before we go final with them.

But that is the way I think you need to go forward and deal with these tough issues. That is at the heart of why I have some problems with what is in this bill. Let me just highlight basic concerns and then give just a few examples of specifics out of the bill and then try to respond to your questions.

First, let me say it is a comprehensive bill. I am still finding out after three weeks of working on it what is in it and what it means. Things that appear to be minor have major implications when you look at what their impact would be if you in fact tried to implement that law. So, it is comprehensive.

General concerns first, because I think it does go to the heart of how the legislation is crafted and the direction it's taking. Flexibility. It does, I think, basically alter the relationship under the Clean Air Act, the existing Clean Air Act, between Federal and State and local Governments on making decisions on how we're going to go forward and control sources of air pollution. Traditionally, the Federal Government was going to establish standards, and the State Government was going to identify sources and control them. Over time we realized that there is a role at both the Federal and State levels, for deciding which sources should be controlled and how.

Just as I indicated from the proposals I made this morning, there are things that should be done by the Federal Government as far as regulation is concerned. Things like a Federal motor vehicle or fuel volatility control program are traditional, and properly so, I think Federal responsibilities in standard-setting and regulation development.

But there are other, specifically targeted responsibilities that State and local Governments have to carry out in the air program to take into account the dramatic difference across our country in airsheds, mixture of sources, the kind of decisions that must be made about what sources will be controlled, what transportation control measures will be put in place etc. And we don't want to build a national control program based on the St. Paul-Minneapolis problem. We have to build in the flexibility to take into account that problem, many other problems, and go forward with individual solutions for very different problems.

This bill goes far toward vesting overall responsibility in the Federal Government by saying, in ozone as an example, that we are going to put mandatory controls everywhere, including enhanced I&M, alcohol fuel programs everywhere there is a 50-or-more vehicle-fleet, mandatory CTG's—that's control technology guidance—so no matter whether the bakery in your area is much of a source or not, you've got to put controls on it because it's been set at a Federal level.

It takes away what I think is the balance we have been able to achieve under the Clean Air Act, and it results in significant overcontrol. We will, as a result, significantly overcontrol in some places trying to deal with the problem in the worst places.

I think that will fundamentally undermine some of the support we have for pollution control measures. When you cannot explain to the people why in fact we're putting these controls in place and who in fact they are having to pay the price in terms of benefits from pollution control, I think you undermine your basic support. Whether it's the ozone part, the air toxics part, I think that the fundamental flexibility problems in this bill are a major problem.

Cost. We have begun to run cost estimates on this bill. I am sure you want to know the impact of the bill. I want to know the impact of the bill. The figure was used earlier that we have estimated the bill may cost as much as $30 billion a year to implement. Well, I think that is a fairly conservative figure. But it's crude at this point. I can provide the committee with all of our information on how we tried to arrive at costs on various components, how much of that is associated with the acid rain bill, how much the ozone, how much the air toxics.

Senator MITCHELL. Would you do that, Lee, provide us with the specific details and methodology by which you arrived at those figures?

Mr. THOMAS. I would be pleased to do that.

[The information requested follows:]

General Approach to Estimating Costs of Senate CAA Bill

This submission provides a breakdown of EPA's estimate of the costs of the various provisions of the Senate Clean Air Act Amendments currently going through the mark-up process. A complete methodological discussion will be included as part of the questions received from the Committee after the Administrator's testimony.

These estimates should be considered preliminary. The comprehensive nature of the bill has required that we make assumptions, and derive estimates in some cases from limited data. The total of the estimates contained in Table 1 ($17-22 billion per year) is lower than that initially suggested to the committee because we have focused on the new version of the Air Toxics provisions rather than those we estimated at the time of the Administrator's Testimony.

The cost estimates for each of the components of the bill summarized in Table 1 are derived from several principles:

(1) To the extent possible, controls on the same pollutant mandated by several sections of the total Senate bill are costed only once. Thus, for example, cost estimates of the required NOx controls in Title II of the bill are developed by subtracting out the NOx reductions achieved by the mandated RACT requirements of Title I. This means that some cost elements could be shifted from one title of the bill to another, but that the overall total contains no double counting of costs.

(2) To the extent possible, the estimates of costs imposed in the Nonattainment title (plus the relevant sections of Title III) are net of costs imposed by actions anticipated by EPA. Thus, for example, cost estimates for the Senate bill do not include the costs of reducing the volatility of gasoline to a RVP of 9.0 psi because EPA has proposed doing this as part of a package of nationwide measures designed to assist states in bringing areas into attainment for ozone.

This procedure produces an estimate of the additional costs of the Senate approach beyond what EPA currently considers necessary to attain the standard. The cost estimates do not reflect the total cost of achieving attainment around the country.

(3) Cost estimates are intended to represent annual, long term costs, beginning roughly in 1992. In general, one time start-up costs are averaged with 5 to 10 years of subsequent costs to provide a more accurate picture of the annualized expenditure to be expected.

In particular cases, certain short-term costs of the bill are not included. For example, the Senate Bill requires that RVP of gasoline be reduced to 9.0 psi by 1990. EPA's proposed rule calls for reduction of RVP in two stages, reaching 9.0 in 1992. This approach reflects modeling results that indicated that the refining equipment necessary to reduce RVP to that level could not be put in place before 1992. The Senate requirement would either be impossible for refiners to meet or, assuming the necessary large-scale short-term product switching is possible, would be extremely costly. We estimate the one-time excess cost of the Senate proposal to be roughly 2 billion dollars incurred in 1990 and 1991.

(4) We have attempted to be cautious in interpreting various provisions of the bill. For example, the language of the bill is somewhat ambiguous concerning the requirement to implement Traffic Control Measures (TCMs) to offset growth in mobile source emissions in ozone and CO nonattainment areas. We have chosen not to include mandatory TCMs as an element to be costed in the bill. If we had looked at these measures in areas with design values above .18, the costs of the bill might have risen by as much as $4 billion annually.

Similarly, with respect to Title V (air toxics) we have estimated the cost of placing maximum possible controls on sources required to meet the health-based standards. In some cases, these controls will not be adequate to meet the provisions of the bill and sources would be forced to shut down. The costs of closures are not included here.

(5) We have not yet attempted to estimate the costs associated with Title IV (new NAAQS requirements) or Title VI (municipal waste combustor controls).

(6) We have attempted to summarize the costs of the Senate Bill to highlight some of the issues we feel the bill raises. For example, Table 1 summarizes the cost associated with the attainment of National Ambient Air Quality Standards in terms of several general categories that may or may not reflect individual provisions of the bill, but do highlight many of the central problems of the nonattainment portions of the bill, specifically:

- Control requirements imposed by the bill in excess of those required to attain the NAAQS.
- Imposition of controls in "transport" areas which would otherwise be classified as attaining the NAAQS.

- (a)Imposition of NOx controls where such controls are unnecessary or counterproductive (or)
  (b) failing to allow credit in the form of lessened VOC controls in those areas where mandated NOx controls are beneficial.

- Requiring the Petroleum industry to produce a new grade of gasoline capable of being blended with alcohol without exceeding an RVP of 9.0.

- Requiring extensive new forms of Inspection and Maintenance programs in existing nonattainment areas, and expanding these programs into new areas.

Table 1: ESTIMATED ANNUAL COSTS OF THE SENATE CAA BILL

I.	Nonattainment Costs (Net of possible EPA Approach): Titles I and III(part)		
A.	Overcontrol costs	0.80 billion	
B.	Transport Area costs	0.53	
C.	Low RVP Fuel	0.2-0.75	
D.	Stationary source NOx	1.10	
E.	Mobile Source I&M	1.31	
	SUBTOTAL		4.0-4.5
II.	Acid Rain Controls:Title II		
A.	Utility SO_2	7.0-8.0	
B.	Industrial SO_2	0.5-1.0	
C.	NOx Control	0.5-1.0	
D.	Growth Provisions	0.0-1.0	
	SUBTOTAL		8.0-11.5
III.	Mobile Source Measures: Remainder of Title III		
A.	Diesel Sulfur	(0.23-0.51)	(Counted as part of Title II)
B.	LDV Hydrocarbon	(0.47)	(part of Title I)
C.	LDV NOx	0.37	
D.	LDT Hydrocarbon	(0.15)	(part of Title I)
E.	LDT NOx	0.18	
F.	Particulate controls	0.03-0.15	
G.	HDGV NOx	0.04	
H.	HDDV NOx	Not Feasible technically.	
I.	Extended Useful life	Not Estimated	
J.	Other LDV changes	Not Estimated	
K.	I&M	(1.31)	(part of Title I)
	SUBTOTAL		0.6-0.7
IV.	New Standards: Title IV	Not Estimated	
V.	Air Toxics: Title V (based on new version developed after Thomas testimony)		
A.	Technology Based Standards	0.37-1.38(net of Title I)	
B.	Health Based Standards	3.3 (maximum control; provisions still not met)	
C.	Release Provisions	0.17-0.27	
	SUBTOTAL		3.8-5.0
	TOTAL		$16.4-21.7 billion/year

Mr. **Thomas**. I must tell you it is a very expensive bill because it is a very comprehensive bill. I think the Washington Post article talked about $77 billion a year as an estimate of what we spend for pollution control in this country. We talked about that as a proportion of GNP and talked about that significance. You add another $30 billion on top of that every year, that means you have decided that this is the area that is going to get a tremendous amount of this country's resources.

My problem, when I look at the costs, is trying to equate that with benefits. In many cases, I can't do it. I cannot see the benefits in many cases from the kind of control costs that would be incurred.

Additionally, the bill goes into—and we can go into detail as you want in the questions—the kind of new administrative structures that it's setting up, how this in fact does or does not coincide with other Federal authorities that we have like the Superfund authorities and others.

The third fundamental problem is on schedules. Throughout this bill there is a series of schedules. In many cases I think they are unreasonably short. I think in many cases there is not really a basis for the schedule. You have set up, for instance, a schedule for promulgating new national ambient air quality standards under the Clean Air Act. Well, the proposed standards are certainly not scientifically based. In many cases, as a matter of fact, there is not a scientific base to suggest we should promulgate a standard. In many cases there is no question the schedule is going to be missed. So unreasonably short time frames—and it is not in just one part of the bill. There is one, for instance, on the air toxics. Within 30 days we're supposed to go out with something after the bill is passed. And acid rain, we're supposed to, in one place, review State plans and approve them in six months. Well, the deadlines are unreasonably short in some cases, I think, and in others I am not sure I understand the basis of how the schedule was established in the first place.

It short-circuits the normal review process. A good example was the one mentioned. For instance, if you are going to set a scientifically based standard, you certainly want to go through both the full scientific peer review and the full public comment process. You can't do that within the time frames established in this bill.

Science, I guess, is another area I would have to emphasize. One of the difficulties we face all the time is in trying to establish a scientific or technical base, for standards or for implementation measures under all of our authorities; in this bill we have prejudged science and we have prejudged technology.

You have a title on mobile sources and a title on national ambient air quality sources that are not based on scientific knowledge in the traditional sense of the way we try to set standards. In fact, some of those standards, I think, would have major implications and could not be met if they were established the way you have them in the bill. And as a result, we would have to forego that particular source or that particular technology as far as the economy and the benefits in this country.

So, when I look particularly at mobile sources and particularly at the establishment of new national ambient air quality standards that are mandated in this act and I think about the time and effort that my scientists, scientists in the academic community, and scientists at large spend trying to come to grips with limited scientific data we have for establishing standards and for establishing technology as a basis for standards, it just goes far beyond my imagination that you could establish those in law the way they have been established.

Now let me give you a couple of specific examples of what I am talking about and then we will take questions.

First, the overcontrol. You may well have seen this chart on the left. Before, it's the chart that shows those 75 or 80 cities that have problems with nonattainment this year, ranging from Los Angeles, which would need a 70 percent reduction in volatile organic compounds, down to a series of cities that probably need 10 percent or less in order to attain that standard.

Well, under this bill, for these ozone areas you would mandate a whole series of controls. But we already have the Federal motor vehicle control program. Look at that line at the bottom [indicating]. That program, which is in place and is the result of fleet turnover, will get us about a 25 percent reduction in hydrocarbons over the next 6 to 7 years. In other words, any number of those cities, with no additional controls, will attain that standard in that period of time, many sooner, many in a couple of years.

With the mandates you are putting in here, in addition to those controls that are already in place, those cities would also have to put in place enhanced I&M. They'd have to put in place methanol or alcohol fuel programs. They'd have to put in place a whole range of new control technology guidance, even though we can't say that you need it to attain the standard, because you're going to attain the standard without it.

As a matter of fact, if you look at those requirements in that Senate bill, those mandatory things run all the way up to the last part of that chart. It takes away the flexibility that I talked about and results in overcontrolling by trying to deal with the toughest part of the problem.

The little dip that you see in there on that top line is a direction that Senator Graham tried to take to deal with that in subcommittee markup, and I think was looking in the right direction. But even that you can see clearly doesn't deal with the overall problem of overcontrol.

The second example: You've got a requirement for on-board controls in cars to control evaporative refueling emissions, and you've got a requirement for stage two controls at the pump. Well, the theory is that people will go ahead and put the controls on at the pump while the automakers are putting the controls on in the car.

Well, the history doesn't show that's the case. We have been fighting stage two in this country now for the last number of years. We have a couple of States that have it in place. I have now proposed that we are going to go with on-board on cars because I think that's the better way to control those emissions.

Even that top line, immediate implementation, toughest enforcement on stage two, that's what the top line is all about.

The bottom line is what I call realistic implementation. Actually, I think it's optimistic implementation. The little difference between that curve and those two lines is the benefit you'd get from trying to have both of them put in place.

While you're mandating those stage two controls, I am sitting here as the person who's received a letter from virtually every Member of Congress during the last six months telling me I better not require stage two or they are going to be very concerned about it. Now, that certainly had no part to play in the decision I made, but I am telling you it's reflective of how the people back home feel about it. And that is what I am talking about when I am talking about overcontrol and the lack of support I think will result if we can't sell that control with pollution control results.

Additionally, the bill doesn't speak to what happens when we get on-board in place. Some have said, well, it doesn't say you have to leave them in place, both stage two and on-board. But it certainly doesn't say we can take them off either. You wouldn't want them both in place. You can't capture those emissions but once.

The third example: You have set up a new structure for transport, which, as Senator Chafee indicated, is a tough problem. I agree with him on that. We are working on it. I do have ideas on how to try to come to grips with it. And we have worked with the States on it.

Let me give you an example of why I think this goes far too far in what we're setting up. It incorporates a number of States in two transport regions: the northeastern States, and the midwestern States. And it says even though you live in that State and you don't exceed the EPA air quality standards, you still have to put in effect a whole series of controls.

So, for instance, if you live in the State of Virginia and you live in Norfolk or Roanoke or Charlottesville, you are going to have to put in a series of controls; for instance, stage one controls for gasoline, which means that every service station will have to put in controls on their tanks that hold their gasoline even though the area is meeting our standard. If you live in a small town in any one of those States, you will have to do the same thing. If you live in a town where the metropolitan statistical area is over 100,000, you will have to put in an enhanced I&M program. Overcontrol again, going far too far in trying to mandate a solution to a problem.

The fourth example: All right, let me just give you an example of the kind of things that are required. In that transport region, in other words, in those areas that are meeting our standards, this is a list of everything they're going to have to put in place. For one thing, if you have a population of over 100,000, you have to put an inspection and maintenance program in place. You're going to have to put all these other things in place.

In other words, if you're a service station, you put stage one controls in place. If you have a little coating operation, say you're a metal furniture plant or a small chemical manufacturer in operation, you have a gasoline tank truck operation, you put all these controls in place. It doesn't matter what size your area is, it's just that you happened to get listed in all those States. You're in the transport region. And there is a commission set up that can go further than that in its recommendations.

I think that has major implications for eroding the overall support for clean air, frankly, as opposed to promoting support for clean air.

As we look at the acid rain title, title II of the bill, the members of this committee know where I stand on that issue. I have testified on that issue a number of times, as recently as a few weeks ago. You know I don't feel we are at a point of scientific information to suggest that we go forward with a control program. Given that understanding, let me just comment on what is in the bill.

The bill is a very stringent control program, the most stringent control program, with the exception of Senator Stafford's bill, that is currently pending in Congress. One issue that I think you need to bear in mind is that as you look at tons removed of SO_2, there is a direct relationship with cost. So, trying to determine how many tons are needed is very important if you want to have a bill that doesn't cost too much.

As you can see here, if you run up from four million tons to 14 million tons, 14 million being our estimate on this bill, your costs go up right along with it, to the point that our estimate for the sulfur dioxide portion of this bill is about $7 billion a year that it would cost to implement that portion of the bill to be required in 1996. It doesn't take into account the nitrogen oxide portions of the bill.

One of the reasons I don't mention the nitrogen oxide portion is that under the ozone portion you require NO_X RACT. That's the first time that's been required. That means that everybody in these nonattainment areas are going to have to use reasonably available control technology on all their nitrogen oxide sources, the first time that has ever been required.

Our estimate is that if you didn't have that, the NO_X requirements under this would run about $3 billion a year. Trying to determine what the trade-off is between whether you're going to pay under the ozone part or pay under this part is one of the things that is difficult to do in the bill.

Additionally, the NO_X requirement you've got in the ozone part is a good example of where you're getting ahead of science. In fact, you may well be exaggerating the ozone problem. NO_X is a depleter of ozone in addition to a precursor of ozone. NO_X controls in some places will in fact exaggerate the problem as opposed to correct the problem—a good example of why we need to tailor controls in different places depending on what their NO_X-hydrocarbon ratio is, depending on what their meteorology is.

NO_X controls, by the way, for ozone are only now required in limited areas in California as a way to solve a part of the ozone problem. We're looking at NO_X controls for other areas, but it is definitely an issue where we are ahead of science and may be going in exactly the wrong direction if we mandate certain controls.

The second issue on acid rain that I think is critical is the correlation between our alternative technology provisions, which we certainly support, is a provision to move in the development of new clean coal technology and your emission reduction or deposition control provisions. The timing is out of sequence by about, I would say, 3 to 5 years. As you can see, timing of controls—on the top line—State implementation plans due in about 2 years. That means that over that 2-year period of time the States are working with their utilities, making decisions on where controls are going to be placed. If you require those utilities then, after that, after we've approved those, to actually certify how they're going to meet those standards, then they go forward and actually have to have binding contracts. That's out at 5 years. That means they've bought that scrubber. Well, if you will notice down on your technology program, that is about the time the first demonstration results are coming in from the clean coal technology.

So, in other words, they will not be able to take into account any of the demonstrations from the clean coal technology effort in what you are requiring over on the acid rain control side. If you were, for instance, interested in putting those things more in line, you would think more in terms of, instead of 1996 a compliance date or implementation date, 1999 or 2001 to bring those things together.

Moving to the last couple of examples, let me mention the air toxics section. Senator Durenberger is not here, but he and I had this conversation before. I will point out that we have done an overall review and have worked and studied the issue of air toxics. I have spent a good bit of time on it. We have developed an overall strategy on air toxics about two years ago.

Part of the study we did about two and a half years ago laid out what we thought the overall problem was associated with air toxics in the country. It's a mix of what we call area sources and point sources. Area sources are a lot of small sources we think account for maybe 50 to 75 percent of the health-band problem. Point sources account for maybe 25 to 50 percent.

If you look at the range of what we identified as the pollutants that were a cause of the problem, you will see the first ones are products of incomplete combustion. That is from combustion in any source, benzene, chromium, formaldehyde. Those are the kinds of source pollutants that are of concern in the air toxics area.

You can see the portion of the air toxics program [indicating]. Now, on the right is how we're addressing it. A number of them we've addressed and a number of them we're working on. You can't just look, at the air toxics section of the Clean Air Act, you have to look at all of our authorities. For instance, a good example of a tough regulation we worked on and proposed was for new wood stoves under section 111 of the Clean Air Act. Coke ovens were under the 112 section. Diesel, particularly, the major source was under the mobile source standards.

You look across all of these, and you will find that we used RCRA requirements, RCRA statutes, we used the Clean Air, we used pesticide and toxics, any number of our requirements to deal with air toxics.

That's why I said I think we have the authority under the law we're moving well to deal with those series of sources, and on the emergency or acute side last year, this body and this Congress dealt with that through Title III of the Superfund amendments which set us in a direction that we are just now implementing, including doing an overall study on prevention.

Senator Byrd, a major instrumental force behind setting up section 305 under the Superfund law to look at this whole concept of prevention and make a report to Congress, and we are in the middle of that process, with a study due out next year.

Finally, let me just say that the bill, the way it has been crafted, will have major implications for individual sources.

This is an example [indicating], synthetic chemicals production. It's a category that we are in the process of looking at for regulation. So, we have a good bit of information on it. In fact, the way this bill is crafted, it seems to carry with it a concept of zero risk or negligible risk. It's hard to define what negligible risk is in the context of the bill. It would mean literally shutdowns for a number of those sources. The technology can't control those sources.

When you look at overall risk reduced, you can hardly measure it in terms of aggregate risk, but you can certainly measure it in terms of number of sources that would shut down. As a matter of fact, it would range from, if it were a zero-risk standard, to every one of those sources being shut down. Those are chemical plants. If there were one in 10,000 additional chances of cancer from risk studies extrapolated from animal experiments, we would still be shutting down between 15 and 20 plants.

So, Mr. Chairman, in conclusion, I hate to come up and be so negative in my comments on the bill because I know we share the same goal, and that is clean air. I think we have made good progress. I think we have a ways to go, and I want to work with the Congress in how we go there. But I must tell you I don't think this legislation heads us in the direction we need to go. As a matter of fact, I think if we tried to implement this legislation, we would have a tremendous backlash, and I believe in fact it would degrade the overall public support for environmental protection.

Thank you, Mr. Chairman. I would be pleased to answer any questions that you or any member of the committee may have.

Senator Mitchell. All right. Before we proceed to questioning, during Mr. Thomas' statement we were joined by Senators Pressler and Graham. Before we begin the questioning, I would ask if either of them has a opening statement they would like to make.

Senator Pressler. Mr. Chairman, I want to thank you for always calling on us for our opening statements. That is a very great courtesy. I am sorry I haven't been able to be here at the beginning, but I would like to place mine in the record. Mr. Chairman thank you very much.

Senator Mitchell. Thank you, Senator Pressler.

Senator Graham, do you wish to make any opening comments?

Senator Graham. Mr. Chairman, I have an opening statement which I would ask be submitted for the record. Thank you.

Senator Mitchell. Thank you very much.

Well, Mr. Thomas, thank you for your statement. As I have said to you many times, and as you know, you have my respect and, I believe, the respect of every member of this committee. We will, as always give your views careful consideration. But I cannot in candor do anything other than express my deep disappointment over your statement, which is largely devoid of any constructive suggestion. It amounts essentially to do, well, if not quite nothing, then very close to it.

As we consider your position, I think it is important for the benefit of my colleagues and the public to keep this in perspective. If this committee had accepted the EPA's original position, as presented to it, we would not have enacted the Clean Water Act earlier this year, we would not have enacted the Resource Conservation and Recovery Act changes in 1984, we would not have enacted the Safe Drinking Water Act last year, and we would not have enacted the Superfund changes last year.

In every one of those instances, the laws were enacted over the Administration's opposition or after a change in the position by the Administration after its initial opposition.

In short, if this committee had followed your agency's advice, we would not have enacted a single major environmental law in this decade.

Now, we have to deal with the problems as they exist, and our assessment of the EPA's performance is not limited to this committee or the Congress. In September 1984 the United States District Court for the District of Columbia ruled on a lawsuit brought against the EPA Administrator—not you, in fairness to you, but your predecessor. And so that we can keep this in perspective on how we ought to act on this and all the talk about let the EPA act under the existing law, I quote briefly some excerpts from this decision by the United States District Court.

After hearing all of the evidence in that case, the court said:

> Despite Congress' determination to establish a specific, unqualified timetable for the promulgation of regulations governing NO_x emissions from heavy vehicles, the EPA has done virtually nothing to establish those standards. The same inaction characterizes EPA's treatment of the subject of particulate standards. In each of the foregoing cases, the EPA has repeatedly declared that it would shortly issue the required regulations, only in fact to fail to meet any of its own self-imposed timetables.

He then says that, "The agency's position is devoid of justification for the agency's laggard performance of its mandatory duties," and the court found it nothing short of astonishing that the agency seeks additional time to promulgate the required regulations when it offers not one shred of evidence as to why it has thus far failed to issue those standards.

Now, I have to say that this has improved since you took over, but we still face the same problem, and nothing illustrates it better than this issue of regional ozone transport, which Senator Chafee brought up in his statement.

On pages 12 and 13 of your statement, you denounce the proposal in the bill on regional ozone transport, and you conclude by saying:

> The act already provides more direct authority in section 110(a)(2)(E) to require the control of pollution in one State that prevents attainment in another State.

So what you are saying is don't write this into the law, we've already got authority under this section. And yet, you have never exercised that authority under that section, and indeed the EPA has opposed lawsuits by several States which have sought to require you to exercise the authority under that section.

So, how does it sound to us on the committee to hear you say, "Don't do anything to the law, we already have authority under the law," when you have refused to exercise the authority under the law? And the problem continues to be more aggravated, and not only have you refused to exercise the authority of the law, you have vigorously opposed lawsuits by States asking the courts to require you to exercise that authority.

So, this is the problem that we face. How do we deal with this? We write a law. We give the EPA authority. The EPA does nothing. So, then we come back and we say, well, we'll try to require them to do something, and the EPA says, "Don't do that, because we already have authority under the law."

Take mobile source standards, your words, "Mobile source standards cannot be met." That statement is identical word for word with the opposition expressed when the act was originally proposed. Yet, as we all know, the act was passed, then the technology was developed, the standards were met. And all concerned agree that had the law not been passed, the technology would not have been developed and the standards would not have been met.

We got some testimony on that very point. Let me read it. On March 26, 1987, the director of the Manufacturers of Emissions Controls Association, who obviously have an interest, but they told us, and I quote:

> Technology forcing standards is probably the most critical aspect, the most needed thing in terms of fostering a development of either new technology or refining the existing technology. It is critically important to companies such as ours which are developers of emission control technology. In order to commit the necessary resources and develop these technologies, we need firm standards in place that give us the guidance and the assurance that the products that are developed will find a market.

Now, on the question of State flexibility, you come in here, the Federal Administrator, and say leave it up to the States. For months we had a parade of State officials come here and say, "We want Federal standards. The only way we're going to be able to do this is if Federal standards are proposed and they are enforced, which they have not been in the past decade."

I have taken up most of my five minutes in this statement. I have several questions which I am going to get to in my second round. But one area of questioning will be the performance of the EPA in failing to notify States of the inadequacy of their plans, and we have the figures here on the numbers of areas that are in nonattainment who propose plans that were either inadequate or they took no steps to implement them, and EPA has done nothing, nothing to tell them that, "Your plan is inadequate or, if your plan is adequate, you're not doing what you said you would do in your plan."

That is one of the major reasons why we now confront the serious problem of a deadline of December 31, 1987, with 70 major areas not in attainment, and we hope fewer when we get the new figures from you in a couple of months. And overwhelmingly the local areas and the States have come in here and said, "We need Federal standards, we need an EPA that will enforce those standards, and those are two things that we haven't had."

So, it puts us in a difficult spot to have the State and local officials say we need Federal standards, then have the Federal officials say leave it up to the States. So we have got to deal with that and we've got to reconcile that. But it is obvious that if we follow the prescription in your statement, nothing will happen, and come 1992 we will be facing the same problem we have now, that a lot of areas are out of attainment, except that in the intervening five years millions of Americans will have had their health affected by this air pollution.

That is not a question; it is sort of a response to your statement. I would be pleased if you would respond to that if you like, except I don't want to encroach on the time of my colleagues.

Mr. THOMAS. I would like to respond.

Senator MITCHELL. Then I am going to get into questions in the second round. I have a large number of questions.

Mr. THOMAS. Senator, I strongly have to take exception to much of what you have said. The last issue, State standards, I didn't come in here and suggest that we turn it over to the States. I came in here suggesting that what this problem requires is State and Federal and local Government working together, just the way I feel we have worked together in the past. Look at the Federal standards we have on the books. Look at the Federal standards we're putting on the books. But in addition, you've got to make those tough decisions at State levels and local levels as well.

There is a mix of responsibility. Don't overreact because you're frustrated and take on that responsibility yourself and put it in the law. You don't want me to make them or the State to make them. You want to put them in your law. The end result is, as a result of your frustration over the difficult progress, the difficult time we have in making progress—and we are making progress on ozone—you have far overreacted in this law.

Give us the flexibility to continue to make progress, but with the mix between State and Federal decision making that is required to deal with the different problems in different places. We have in fact in our agency promulgated numerous Federal standards. I have done it. I have signed them. We have enforced those standards. There is no question about it. The record is there. I strongly disagree with any suggestion that we haven't.

Mobile sources, technology forcing, I have lists of mobile source standards we have promulgated. I strongly disagree that the only standard we have put out is a NO_x standard. I have signed those standards. We have put them out. They're technology forcing. Technology forcing means we have to go through a process that contemplates that technology will be able to be developed to meet that standard, not a process that sets a standard on the books that everybody who's a technical expert says can't be met. That's what you're putting in this bill. You've got a heavy-duty NO_x standard in here that all of my technical experts say, well, we'll just take heavy-duty diesel trucks off the road. There's no way they can meet that standard. That's not technology forcing.

So I am not opposed to technology forcing standards on mobile sources. I agree that that is an important part of clean air. But you've got to do it in a reasoned, technically based process.

As far as the transport issue is concerned, I haven't opposed anybody who has used that section of the act to deal with ozone. The big problem you have with transport is trying to have some kind of scientific basis to determine how much of a problem is caused by transport from one area to another, and ozone is the worst problem we've got on transport.

We think you need to deal with it by expanding the planning areas for nonattainment as far as the kinds of controls that are going to be required. We think you need to deal with it by the improved regional model which we will begin using this year and next in working with States as they develop their new SIP's. We think you need to deal with it by looking at the kind of Federal controls that I talked about this morning. Fuel volatility is a good example of one. It gives us national controls dealing with on-board. Those are the kinds of things clearly that you need to deal with.

But let's not set up something like has been proposed here for these attainment areas that are in some transport region that we don't have a scientific basis to determine and build in what I think would result in an unbelievably contentious process of having the officials of those States trying to battle among themselves over what kind of controls they're going to put in places that already meet our standards.

So, Mr. Chairman, I share your sense of frustration, but we are making progress. We have made progress just in the last 5 years. We have reduced volatile organic compounds in this country 30 percent in the nonattainment areas. Let's not throw out the baby with the bathwater is what I am suggesting when we look at a solution for a tough problem.

Senator **Mitchell**. Thank you.

I will defer now and go with the round of questioning. Senator Breaux is next.

Senator Breaux.

Senator **Breaux**. Mr. Thomas, you addressed some concerns about not breaking up the appropriate Federal-State relationship and that we shouldn't be tying the hands of the States as to the methodology they want to use to reach the national goals.

Senator Graham had offered an amendment which I supported in the subcommittee that seemed to provide some flexibility, in that we have extended for 3 years the time some areas have to reach the goal; some States have been given 5 years, some areas have been greater than 5 years. We have given them some flexibility as to what items they would have to embark upon in order to reach that goal. If you give the 3 years, you have to do a little more than if you got 5 years, and more if you give more than that.

Doesn't that give the flexibility that you were talking about? What more flexibility would you require?

Mr. **Thomas**. Senator, the amendment that Senator Graham offered is clearly in the direction that I would suggest as far as trying to take into account the differences between areas and the controls that are required. But it still will result in significant overcontrol. You're talking about areas, for instance, that you anticipate attaining the standard in three years. Well, as I indicated, those are areas that probably only require a 10 percent or less reduction in volatile organics.

Senator **Breaux**. Would you go so far as to say, "Here is a list of 10 suggested things that you can do that will help you get there. We don't care how you do it, just do it within 3 years"? Are you suggesting that much flexibility?

Mr. **Thomas**. They have already got that on the books is what I am suggesting. We already have those kinds of controls for places that are going to attain in three years. What I am suggesting is that, in fact, yes, we pick up on the concept that is in this bill of different attainment dates for different places. I think that is the right way to go. I am suggesting that we not put the kind of mandatory controls that you have in this bill, whether it's as a result of what happened in the Graham amendment or whether it's as a result of what's in the basic bill itself, for many of those areas won't need it.

Senator BREAUX. I thank you for that response.

Let me ask you this. An amendment that is in the bill on OCS regulation that speaks to a new section that says that any local Government air quality organization within a State can enforce air quality standards offshore coming from any source of air pollutant whatsoever. How do you all feel about that?

Mr. THOMAS. Well, we opposed that provision. Let me explain why. First is the area where we really have an issue as far as air quality is concerned is offshore from California. We have an issue out there that State and local Governments, we and the Department of the Interior and people who drill, are concerned about.

Senator BREAUX. Is that being regulated in any way now? It's not, is it?

Mr. THOMAS. The regulation and the regulatory authority for offshore on air is under the Department of the Interior. We are working through now in a negotiated regulatory process a solution that I think is headed in the right direction for that problem. But the problem with this provision of the bill is it's not just dealing with that problem, it's dealing with all offshore drilling and it picks up all the other requirements of the bill.

Senator BREAUX. Can you provide to the committee, prior to final action by the full committee, a page or two which spells out what is being done in that area?

Mr. THOMAS. Certainly. We'd be glad to. For the California area and in other areas of this bill, I think, there is not an air problem that we are working on with the States that they are concerned about, particularly for that drilling that is far offshore, and it also is regulated as far as the Department of the Interior requirements.

Senator BREAUX. If you could provide us with that, I think it would be helpful.

Mr. THOMAS. Yes, sir.

[Information requested follows:]

Description of the Ongoing Regulatory Negotiation Concerning the Outer Continental Shelf.

In 1984, the Department of the Interior announced its intentions to amend its air quality rules related to areas offshore California. After several informal discussions of potential changes and publications of a January 1985 Advanced Notice of Proposed Rulemaking (ANPR), then California Secretary of Environment, Gordon Duffy, suggested a negotiated rulemaking as a way to develop new regulations that would better address the OCS-related air quality conditions and concerns of the State of California. The existing rules had been challenged by the State of California in a 1981 lawsuit which had not yet been heard on the merits. All parties in the litigation--the DOI, industry, environmental groups, and the State--agreed that it would be useful to pursue direct negotiations and applied to the court to stay the lawsuit while discussions in the form of a negotiated rulemaking were underway. The court agreed and has stayed the litigation. Following an initial meeting in September 1986, formal negotiations on the issue began in October 1986. All parties realized that the negotiations would be a lengthy and an intensive process.

In April 1986, the Minerals Management Service contracted with The Mediation Institute (TMI) to facilitate the negotiations. As an initial task, TMI conducted extensive interviews with known and potential participants in the negotiations in an attempt to determine, among other things, which organizations, groups, and individuals needed to be represented at the "table." After the negotiations were organized and underway, TMI has continued to provide mediation services. Though the initial contract with TMI provided for facilitation services through March or April 1987, all parties have agreed that progress in the negotiations warrants an extension of the contract into September 1987 and beyond, if required.

The negotiations have focused on a number of complex and difficult issues. A general, but not exclusive, list of such issues includes:

--platform electrification;
--control of ozone precursors during exploration, construction, development, and production;
--installation of OCS best available control technology (OCS BACT) and OCS reasonably available control technology (OCS RACT);
--role of parties in process;
--expanded mitigation options;
--cumulative assessment of OCS emissions and relationship to SIP; and
--facility definition.

On entering into the negotiated rulemaking, DOI agreed that any consensus rule arrived at in the negotiations would be the basis of a proposed rule. The public process will begin with publication of a Notice of Proposed Rulemaking (NPR) in the Federal Register as a part of the regular Administrative Procedures Act process. The DOI also stipulated that the NPR would be faithful to any consensus agreements, but informed the parties to the negotiations that under Federal law public comment would have to be considered in preparation of the final rule. Accordingly, the final rule can differ from the consensus rule if the changes are supported by the record.

There has been an enormous investment of time and effort in the regulatory negotiation process to resolve difficult and complex issues involving air quality protection and OCS development. We believe that this is the appropriate forum for resolving some or all of the issues in a thoughtful and creative way, taking into account the legitimate interests of all the parties.

Senator Breaux. What about motorcycles? The bill gets into regulation of motorcycles as light vehicles for the first time. Was that considered by EPA? What is your thoughts on that?

Mr. THOMAS. Well, it's an example, I think, of going out to sources where the cost just—I mean, there are no benefits that could justify going after motorcycles. Generally, they are used, as you know, not always year-round. They are generally a small part of the inventory as far as controls are concerned. We have some controls as far as motorcycles are concerned. But trying to put these kind of controls on there, when you look at the small benefits that would result, in my opinion, isn't justified.

Senator BREAUX. I have some additional questions, Mr. Chairman. But I will let others get in here, though. Thank you.

Senator MITCHELL. Thank you, Senator Breaux.

Senator Burdick.

Senator BURDICK. Thank you, Mr. Chairman.

Mr. Thomas, you have criticized the pending legislation as unworkable. Your advice seems to be to do nothing. What specific actions does the agency intend to initiate to bring the areas into attainment if we do nothing?

Mr. THOMAS. Senator, I want to clarify to the committee, that I am not suggesting we do nothing. We are working very hard with the State and local Governments to deal with this problem. I suggest that we continue to work very hard to deal with the problem. I am suggesting that as far as ozone is concerned, the kind of direction that this bill takes is not needed, and in the rest of the legislation I am suggesting existing law gives us the authority to continue to do the kind of things that we are trying to do. And ozone is an example.

We have gone forward in both dealing with those areas that have not been able to demonstrate attainment with ozone, and we are working with them to try to review their plans as well as those areas that have approved plans, to determine if they haven't implemented those plans, clearly they will face the sanctions that are prescribed under the law.

More importantly, we are going forward with the Federal regulations that I think are part of the solution to this problem. I mentioned two, on volatility and on-board controls. We are also looking at updated guidance on enhanced I&M programs. We are looking for incentives for alcohol fuel programs. Additional programs at the Federal level. And more importantly, we will proposing next month an overall strategy for calling in additional plans from the States that don't attain in 1987 to ensure that they do just what you want them to do, and that is to keep on the downward trend they have been on to meet the ozone standard.

I think that can be done under existing law, and I think with the kind of regulations we are putting out, the kind of tough decisions they have to make, I would suggest some changes.

One change is clearly in the dates so that we have the opportunity to set differential dates across the country for attainment. We need those forcing dates. And I think, as you did, recognizing that some of them are going to be far out in the future, probably a little further than you thought, and actually attaining that standard is important.

Second, clarifying how we will use the sanctions I think is an important part of a change in the law that could be used that could be made, making it very clear when those sanctions would be imposed.

Those are the kinds of things I think would be a reasonable and responsible way to modify the law so we could in fact continue to make the progress that we are making. It's a tough problem. There's not an easy solution. I think what we don't want is to try to do too much in areas that are close to attainment because we've got our eye focused on areas that are having such a tough time reaching attainment.

Senator **Burdick**. In other words, when we use that phrase do nothing, you're referring to doing nothing legislatively?

Mr. **Thomas**. In most of this bill that is what I am suggesting. I am suggesting existing law without modification. The way that we have the authority to move forward, I don't think we need new authority to deal with the air toxics problem, because of the reasons I explained. We use a variety of our authorities to deal with it. You've given us the strongest laws in this world to deal with environmental protection, and we're using them.

I am suggesting in this area, if the law is going to be changed, I would suggest some specific changes related to ozone. I don't think changes are needed in other places in the law.

Senator **Burdick**. What about areas experiencing growth? In the absence of prescriptive action by the Congress, how will these areas come into attainment and, more important, maintain attainment in the face of population growth?

Mr. **Thomas**. Growth is a tough problem in the ozone area, no question about it. A good example is—probably an extreme example—is Los Angeles. At the same time California, and specifically Los Angeles, has been trying to deal with the ozone problem and putting on the toughest controls in the country, they have had phenomenal growth, and with the increased people go increased stationary sources— meaning new industries—but also increased cars. That's what the problem is as far as ozone is concerned.

We deal with growth. We can deal with growth and deal with it in the context of the control programs that are in place. You see the States in different places have more stringent controls to deal with growth, depending upon what their growth patterns are. There's no question in my mind that growth has to be factored in when you think of the kinds of dates that would be realistic for attainment. You've got to look at what your projections are for growth in a particular area.

I think in many places—well, in some of the places that face the toughest problems, they have got to look at controls on mobile sources, meaning transportation controls particularly in some of their urban areas, and they have also got to look at growth controls as far as stationary sources are concerned. And they have got to place more severe restrictions than they have now if they're going to attain the standard.

Senator **Burdick**. Thank you.

Thank you, Mr. Chairman.

Senator **Mitchell**. Thank you, Mr. Chairman.

Senator Baucus?

Senator BAUCUS. Thank you, Mr. Chairman.

Mr. Thomas, the fact is that I think that most members of this committee are on the one side and you are on the other, there is just a legitimate difference of opinion. That is what this comes down to. You think that you have authority and you're moving and you're cleaning up air toxics and acid rain and you're addressing nonattainment, et cetera.

Most members of this committee don't think so. It's just a very legitimate difference of opinion.

The fact is that some of us have a hard time understanding why the Administration isn't working more quickly. If you put aside the questions of flexibility and cost and Federal-State relations and some of the other problems you have with this bill, putting those aside for a moment—because I think a lot of that is that inside-the-beltway bickering—but instead address what should be done to clean up the air. I am wondering whether you think that the provisions for the standards in this bill would go beyond what is necessary to protect the public health. You, in your statement, so indicated that the standards go beyond what is necessary to protect public health.

Now, apart from whether you're doing very much or not doing very much—I don't think you are doing very much, frankly—but apart from that, why do you think that the standards of this bill go beyond what is necessary to protect the public health?

Mr. THOMAS. Senator, first I agree with you there is a difference of opinion. I am sure if we keep talking, I am going to convince you that I am right. [Laughter.]

Senator BAUCUS. I doubt it. [Laughter.]

I will tell you why I doubt it. Because there are a lot of words flying around here the last couple of hours, and I think just to apply the old test of not listen to the words but listen to the music—that is, read between the lines—that one would get the sense that basically the EPA is trying to sink, torpedo, kill this bill, period. It does not want to work with the Congress.

You have spent, I don't know, let's say 15 minutes, half an hour, almost all your time criticizing the bill. You spent very little time commending a provision or two or three of the bill. That is, if you apply the old smell test, it just seems like you are not trying to work with this Congress and pass a bill. So, that is why I basically conclude that you will not convince me that you are trying to do all that you can do.

You are a good soldier. You are a good administrative soldier for this Administration. I don't think that you yourself fully believe what you are saying.

I think that you have been told what to do by some within this Administration. I don't fault you for that, because you are, after all, a member of this Administration and work for this Administration.

But given that, I would just like to know why you think the standards of this bill go beyond, in your view, protecting public health.

Mr. THOMAS. Senator, you are right, we really do have a fundamental difference of opinion.

Senator BAUCUS. I thought so.

Mr. **Thomas.** What I have said today is absolutely my personal opinion. I have worked in that agency 4½ years. I have administered tough programs in that agency. I am as committed as you are to environmental protection in this country. I am as committed as you are to the goals that you have got incorporated in this act; of clean air. I strongly disagree with what you have incorporated in this bill as the way to meet those goals. And I am convinced if you try to implement everything in this bill, you are going to undermine the public's support for environmental protection measures in this country.

Senator **Baucus.** You're right, we disagree. So get back to the basic question.

Mr. **Thomas.** The basic question is?

Senator **Baucus.** Why do you think the standards in this bill go beyond what is necessary to protect the public health?

Mr. **Thomas.** Well, for one thing, the standards you have incorporated in the bill have no basis in scientific evidence that I have reviewed in many cases that they are required to protect public health. And in fact, in some cases it appears to me—for instance, in air toxics—that you are trying to legislate a zero-risk society, which is not possible in this country if we are going to live together and work together. I don't think we can have that kind of standard if in fact we are going to live together and work together. So I don't think that standard is appropriate for protection of public health.

I do think that a standard that ensures that there is not an adverse health or environmental consequence from pollution is appropriate. Some of what you have in that bill is consistent with that. Much of what you've got in that bill I think goes beyond that. I think what you are trying to do under the air toxics part, what you are trying to do under the ozone and carbon monoxide part goes beyond that, goes beyond that standard-setting process. You require, for instance, the establishment of standards in a time frame specific pollutants to be applied across this country under the national ambient air quality standard part of your bill. I don't know—and I have spent hours with scientists on those issues—where the scientific basis would come from on some of those standards to suggest that we have a human health problem. Some of them I would agree with you on. Some of them I don't know why you would have in there.

Senator **Baucus.** What standard is necessary to protect the public health? Very quickly, let's take SO_2, let's take NO_x, let's take air toxics. What do you think is a standard that would protect public health?

Mr. **Thomas.** Senator, I think the language——

Senator **Baucus.** Apart from the process and all that, just what is the standard that you think is necessary to protect public health?

Mr. **Thomas.** A standard that protects the public from an adverse health consequence from an SO_2 pollutant is the kind of standard that I think is appropriate, and that we set. And let me tell you——

Senator **Baucus.** What would that be? What would that standard be?

Mr. THOMAS. Well, I mean, that is a good example of a process that I have worked on for two years with scientists within and outside the agency of deciding whether the current standard is protective or not. And you get into what is an adverse health consequence. Is the fact that somebody has a reaction in their bronchial tubes because they have a breathing difficulty problem in their exercising and they jog through a plume of SO_2 and over a short period of time there is a constriction, is that an adverse health effect?

Senator BAUCUS. I am asking you.

Mr. THOMAS. And should we protect everybody from it? We do.

Senator BAUCUS. In all cases?

Mr. THOMAS. That also is the question. A hundred percent of those people who are jogging through plumes, I would say we're close to it.

Senator BAUCUS. My time is up. The bottom line really is working to try to work with the Administration. It's good therapy to get some of this stuff off my chest, but that is not what we're really trying to do here. We are trying to clean up the air, and I hope that you will work more closely with the Congress.

Mr. THOMAS. Senator, I want to work with the committee. I have always worked with the committee, and I have tremendous respect for the members of this committee. We have worked together on tough issues. But what is in this bill is really fundamental as far as differences in how we go about doing things. I can't talk about it without saying that.

Senator BAUCUS. My time is up.

Thank you.

Senator MITCHELL. Senator Lautenberg.

Senator LAUTENBERG. Thank you, Mr. Chairman.

It's not "pick on Lee day," but you've got broad shoulders.

Mr. THOMAS. Go ahead.

Senator LAUTENBERG. We are going to throw some more darts. Lee, you suggest the measures that we proposed are too sweeping and too comprehensive. With about 100 million Americans living in nonattainment areas, sulfur dioxide emissions, acidifying waterways across the country, toxic air pollutants being released in huge quantities, you wouldn't characterize air pollution problems as minimal, would you?

Mr. THOMAS. No.

Senator LAUTENBERG. Lee, I think what we're hearing—at least I will speak for myself—but there seems to be a thread through universal respect for you as an individual, truly a professional, and I heard what you said about believing what you say and believing what you do. And I support that, despite very wide differences with the results. But if you say that these are not minimal problems, on the other hand I see you advocating an approach that is minimal in character. You are saying that what we're doing now at EPA and nationally is sufficient to handle the problems that we face. Do I hear you right? If not sufficient—maybe I have extended you a little bit—but gaining on it rapidly?

Mr. THOMAS. No. I think what I said is that the law we've got, particularly ozone—I think that's a good example—gives us the authority and I suggested some changes that I think may be appropriate in that law, but clearly overall, the Act gives us the authority to deal with the control of the sources of the pollutants that form ozone. But it is a tough problem to deal with. We have made progress. That can't be overemphasized. We have made progress in dealing with it. But it is not a short-term problem that is going to be solved, it's one, just as you recognized in this bill, that is different in different parts of the country and that requires different time frames and different controls in order to solve it.

I agree with you on ozone that it is a problem that requires tough solutions. Our difference is I am suggesting we are working and we are putting out and fashioning solutions under the existing law. I don't think we need to put in the kind of requirements that you are putting in on ozone which I think will result in overreacting to the problem.

Senator LAUTENBERG. Lee, the chart that you had up here entitled "Percentage of VOC Emission Reduction" talked about starting in 1991, 1992—I am not exactly sure how the scale works; you know which one I am talking about.

Mr. THOMAS. Was that the States, Senator?

Senator LAUTENBERG. Overlap that you had, the overlap of stage two and on-board.

Mr. THOMAS. Oh, okay.

Senator LAUTENBERG. Hydrocarbons on-board. You say that you are doing things in the ozone nonattainment area despite the difficulty that will help achieve it. Have you done any rulemaking on how we achieve ozone, what we do about the ozone nonattainment areas? Is there something now out there that advises the States on what to do?

Mr. THOMAS. Well, there are numerous things out there, Senator.

Senator LAUTENBERG. All right.

Mr. THOMAS. I mean, we've got numerous regulations that lay out requirements for areas that have ozone and carbon monoxide, but ozone nonattainment problems. Our control technology guidance for nearly 30 source categories are on the street, required for implementation in those areas. Inspection and maintenance programs are also required in those areas. So there are numerous things, and we are doing more.

Senator LAUTENBERG. All right. But they are not working well.

Mr. THOMAS. No, they are working well. But we've got to do more.

Senator LAUTENBERG. Well, we have a long way to go to achieve a satisfactory level of attainment.

Mr. THOMAS. In some areas we don't have too far to go, and in other areas we have a long way to go.

Senator LAUTENBERG. But in areas where there are enormous population bases, we have a long way to go.

Mr. THOMAS. You're right.

Senator LAUTENBERG. If I understand, are you looking for a proposal very soon to solicit views on proposed rulemaking for ozone nonattainment?

Mr. THOMAS. Well, what we have done is a series of things. For instance, today we proposed the rule that is indicated right here, and that is a requirement that you put on-board controls on all vehicle to control evaporative emissions. That deals with ozone. It also deals with air toxics.

Senator LAUTENBERG. Right.

Mr. THOMAS. We put out a rule today proposing volatility controls on all gasoline. That would get us about an eight percent reduction.

Senator LAUTENBERG. Let's look back in here. The starting date for this is?

Mr. THOMAS. Well, the proposal here we were using as an example 1991 for the on-board controls, and we were using basically now for the stage two implementation, looking at some of the areas that have been looking at stage two and are in the process of implementing, like New York.

Senator LAUTENBERG. But you prefer an on-board approach, as I heard you in your testimony.

Mr. THOMAS. For the long term I think the on-board approach is the way to go.

Senator LAUTENBERG. But if it takes the next 4 or 5 years, 4 years let's say, to get rules out there that determine how we solve the problem, we're going to have a lot more pollution, we're going to have a lot more problems, and we are still going to be somewhat behind what might be some technological improvement of some significance over the period of time.

Mr. THOMAS. Well, this is a good example. Stage two controls will maybe get you a 1.5 percent reduction in volatile organic compounds. The areas you are talking about, the tough areas, 50 to 70 percent reductions are required. So stage two controls—and most of those tough areas like California already have stage two—but stage two is certainly not something that is going to be a major factor as far as ozone nonattainment in either the short term or long term. What will happen, I think, if we require stage two in this bill and impose a sanction like a sewer ban if stage two isn't implemented, is that we will have a lot of sewer bans.

Senator LAUTENBERG. Not to recommend stage two as the alternative, but when I see it backed up by something that is as far off as the possibility of on-board controls is, it seems to me that we are not really gaining rapidly enough certainly to satisfy our needs.

My time is up. Thank you.

Senator MITCHELL. Thank you, Senator Lautenberg.

Senator Symms.

Senator SYMMS. Thank you very much, Mr. Chairman.

Thank you very much, Mr. Thomas, for your testimony. Your comments on the provisions in the bill that abandon science in the regulatory process strike a real chord with me. I have seen some of those instances where, for example, in the Coeur d'Alene mining district in Idaho, the air is really clean but there are no jobs left when the Bunker Hill smelter closed. I think that there is a balance here of how far the Federal Government can go to impose regulations, and if it outpaces scientific capability, well, then in my view it's just absolutely pathologically irrational to pass a law to impose something that you can't accomplish. You just drive it all offshore, whatever it is they're doing.

So I think that I just would ask you just to very briefly respond. I have three quick questions I want to ask you and our time is short. Having testified that there are regulations required by this bill in which science is not complete, then you are put in a position, if I read it right, that you can't assure the committee that the results of those regulations will make the environment better than they do now. Is that correct?

Mr. THOMAS. Clearly, in some cases it has the potential of making it worse.

Senator SYMMS. Okay. To get specific, there are two areas where I am very interested. One is that I have been approached by some people that are in the business of baking bread, which is very much appreciated by people. According to the California study, the emissions from bakeries can constitute less than one-half of one percent of the hydrocarbons released in the State. This particular hydrocarbon is ethanol, which is a byproduct of the fermentation of bread. As I understand it, it's not highly reactive or ozone-destroying.

In view of this, to what extent would the control technology for bakeries further the goal of cleaner air, and how much will it cost per loaf?

Mr. THOMAS. I think the benefits would be small when you think of the emissions from bakeries. Under this bill we would set requirements for bakeries that would have to be applied in all nonattainment areas.

The concern I would have is that there is no ability to look at whether the bakery is a major source in your area. In other words, if you had a series of commercial bakeries, do they in aggregate make enough of a difference that you wanted to control those, or if you had just one small bakery. Under the bill, everybody would have to put the controls in place because the controls would be required under a Federal standard. It's that point of flexibility that I was trying to use in my initial statement.

Senator SYMMS. Okay. The next question deals with diesel fuel. Section 303 prohibits the sale of diesel fuel which contains more than 0.05 percent sulfur. Do you have any studies on what the impact on the price and availability of diesel fuel would be if this were imposed?

Mr. THOMAS. I don't have the bottom line on that that you're looking for because that in fact is a major issue that we are working on in the agency now under our mobile source program; that is, should we, and if so how should we, control sulfur content in diesel fuel. It's a tough issue technically, and we are working through that. When we conclude that, I would be more than happy to share with the committee our determination.

Senator SYMMS. Well, I would appreciate knowing that because I have a letter from one of the refineries in Wyoming that says it would be from four to five cents a gallon. I just would like to verify that.

Mr. THOMAS. What we can do, let me for the record give you basically what information we have now as a result of the work we've been doing.

Senator SYMMS. And what would the impact be on total cleanup of the air to change it from where we are now to 0.05 percent?

Mr. THOMAS. Let me also provide you with information on that for the record. It would certainly depend on where and volumes of fuel that you were talking about as far as the impact on the air.

[The information requested follows:]

Effect of Reducing Diesel Fuel Sulfur to 0.05 Percent on Diesel Fuel Prices

On June 26, 1986, a contractor report entitled "Diesel Fuel Quality Effects on Emissions, Durability, and Performance," was released by EPA for public comment. In that study, it was estimated that the cost of reducing the sulfur content of diesel fuel to 0.05 weight percent would be about 1.2 cents per gallon. On-highway diesel fuel consumption is projected to be approximately 53 million gallons per day in the years 1992 to 1995. Applying this fuel consumption to Sobotka's refinery control cost yields an annual refining industry cost of 234 million dollars per year. The National Petroleum Refinery Association (NPRA) has argued that due to the industry's current product segregation practice, a larger volume of fuel would have to be controlled to low sulfur levels. This is due to the fact that some refiners produce one distillate fuel which is sold to many markets, including home heating oil. Using the estimates supplied by NPRA, the annual refinery industry cost could be as high as 513 million dollars per year.

Public comments have been obtained on the aforementioned report and a more detailed study of the costs and benefits of diesel fuel sulfur control is currently being performed by EPA. Issues which are currently being investigated in greater detail include the refinery cost of desulfurization, the savings on heavy-duty diesel emission control hardware which may result, and the effect of fuel sulfur control on engine life and operation. Preliminary analyses indicate that the savings resulting from an engine wear reduction may be quite large and could totally offset the increase in refining costs. In addition, a special study is being directed at the impact of desulfurization on small refineries.

Effect of Diesel Fuel Desulfurization on Emissions

The report mentioned above estimated that fuel desulfurization to 0.05 weight percent would reduce sulfur dioxide (SO_2) emissions by 285,000 tons per year and directly emitted particulate emissions by about 7,000 tons per year for calendar year 1987. On a typical heavy-duty diesel engine, this would correspond to approximately a 0.06 to 0.07 g/Bhp-hr reduction in particulate sulfate and bound water emissions and a reduction of approximately 0.6 to 0.7 g/Bhp-hr in SO_2 emissions. Furthermore, some of the SO_2 emitted from diesels is further oxidized in the atmosphere to form sulfate particulate. It has been estimated by the California Air Resources Board (CARB) that approximately 50 percent of SO_2 emissions are converted to particulates in this way. Using this conversion estimate of 50 percent, this would result in reductions in "indirect" sulfate particulate emissions of approximately 330,000 tons per year. A more detailed analysis of these emission reductions is currently being performed by EPA.

Senator SYMMS. Senator Breaux asked about the motorcycles, and you covered that.

Mr. Chairman, we are all for clean air, but I do think that in trying to placate nonscientific people, who are oftentimes the journalists who are writing these stories, who may mean no harm, but write stories about something happening that is very injurious to people's health, Congress, being a naturally reactive body tries to react to that problem.

So, if we overreact and try to pass laws that simply cannot work, then I think that I appreciate the pressure that you feel from this committee, Mr. Thomas. I would say that there are some of us who want to compliment you on your willingness to try to stand on scientific data and not be stampeded by less than solid, scientific evidence to the contrary.

It sometimes makes the New York Times or the Washington Post or CBS News cause a lot of pressure on you, and I appreciate that. But I want you to know that I think it in the long-run best interests of the country, that we have got to use a rational approach to solving these problems, and I am willing to work with you to do that.

Thank you very much, Mr. Chairman. Again, I want to thank you for your courtesy to allow me to be at this hearing this afternoon.

Senator MITCHELL. Senator Symms, it's my pleasure. You have always been a valuable, contributing member of the committee.

I just feel constrained to note for the record that we don't want to dump all of this on the laps of the New York Times and the Washington Post.

Senator SYMMS. The Boise paper could be listed in that group, too.

Senator MITCHELL. Well, we had a hearing here before this committee at which the president of the American Public Health Association, president of the American Pediatric Association, the president or a representative, I believe, of the American Medical Association, and another prominent physician in child health all testified unanimously as to the severe adverse effects on the health of children from exposure to air pollution. We are not talking about a journalistic manufactured issue.

Senator SYMMS. Mr. Chairman, let me say that I do not in any way mean to impugn the motives of you or anyone on this committee, that you are just marching to the drumbeat of the news media. That is not what I am trying to get at. But I think sometimes it's very difficult to get to rational, scientific evidence and what is really rational and what isn't. That is all I am talking about. If we can reach accommodation on that, I would agree with Senator Simpson that we might be able to make some headway. But I think if we can't, well, then we will be in the same roadblock that we were 4 years ago.

Senator MITCHELL. I understand and appreciate that. And the Senator knows that we have worked together on many important issues in the past. But I think it is very important for the American people to understand that the issue here is the health of Americans and particularly, according to the testimony before this committee, the health of American children.

Senator Graham.

Senator GRAHAM. Thank you, Mr. Chairman.

I would like to state what I think the difference of opinion is here and then pursue that. I don't believe the difference of opinion relates to the appropriateness of the Federal Government's standards established on the best scientific evidence, which is increasingly of a medical character, what should be the standards for levels of various types of pollutants in our air.

I believe the disagreement is that once those standards have been established by the Federal Government, whether the implementation should be through federally prescribed processes or through processes developed State by State, community by community, subject to Federal plan approval and plan monitoring.

Is that a fair statement of the difference of opinion, Mr. Thomas?

Mr. THOMAS. Senator, on one of the issues, particularly the ozone issue, I think that is a fair statement of the difference of opinion. And the difference is not that there is an either-or in those two alternatives you provided, but how much of a mix of the two is proper; that is, how much of a Federal standard-setting and then Federal regulation as opposed to Federal standard-setting and State regulation should be mixed. My suggestion is a mix of the two is appropriate.

Senator GRAHAM. I gather that you feel that essentially the system which is in place today and has been in place in recent years represents an appropriate balance of Federal and State roles?

Mr. THOMAS. With the clear recognition that particularly over the last, I would say, 5 years there has been as a result of legislation an increasing regulation role for the Federal Government. Particularly in this air area, the Federal Government has taken a greater and greater role in setting the regulations to implement its standards.

Senator GRAHAM. Coming from a State Government background, I start with a presumption in favor of Federal standards and then State responsibility to fashion a plan to meet those standards subject to Federal approval and monitoring. The difficulty is that we have had that system now for almost two decades and we still have half the people of America living in areas where the air does not meet the standards which the best American scientific evidence indicates is what we would accept for the health of America.

In your statement you make the comment that ozone nonattainment is a problem caused by emissions from millions of sources large and small and in every sector of the Nation's economy. That states the complexity of the problem.

What, in your opinion, are the reasons that the current system, after two decades, has not achieved the result of clean air for half of the people of this country?

Mr. THOMAS. Senator, it has achieved our results on a number of our pollutants. The one we are particularly talking about, ozone, it hasn't. I think the reason it hasn't is because we didn't have a scientific basis for setting our goals in the first place. In other words, meeting that standard by 1977 was an arbitrary date that was established. Extending it to 1982 was an arbitrary date. Extending it to 1987 was an arbitrary date.

We have made progress in reducing volatile organic compound emissions in dealing with ozone. We have seen areas reduce, for instance, the number of exceedances.

But I think what we recognize today and what is recognized in your bill is that we have got now a better basis to set what are realistic time frames in which we think that ultimate standard is going to be met, and it is going to be different in different parts of the country. And we need to take that into account. It is going to require tougher decisions at different levels of Government than we have made. We have controlled numerous sources. We have got additional sources we're going to have to control. And in some parts of the country we are going to have to suggest that changes are going to have to be made in our thoughts about how we use our vehicles in our urban areas and our growth in those urban areas if we are going to attain that standard.

So I think that that fundamentally is where we are. It's not that the system doesn't work, that decisions by State officials and decisions by Federal officials. I think we can show it has worked. But it is a tougher problem than we thought. More tough decisions are going to be required, and they are going to be required at every level of Government, I believe—Federal, State, and local—to deal with the ozone problem.

Senator **Graham**. Mr. Chairman, I would like to pursue this line of questioning further, but unfortunately I am going to have to leave.

I would like to ask the witness if he might supplement his response in writing with some illustrations that are site-specific to nonattainment areas as to what he thinks would be the types of tough decisions and tough answers that would be required and which he would like to have the opportunity to make under the current law as opposed to the mandated processes that would be contained in this enactment.

[The information requested follows:]

CASE STUDIES

Kansas City, Missouri

Background

Kansas City originally demonstrated attainment by 1982. Because violations were recorded in 1983 and 1984, Missouri received a State Implementation Plan (SIP) call in February 1985 because its SIP proved inadequate to attain the ozone standard in the Kansas City area. Second high ozone air quality values in excess of .140 ppm have been recorded at existing monitoring sites in the urban area in 1985 and 1986. Depending on 1987 monitoring results, Kansas City could have a design value in excess of .140 ppm. Based on the 1982-1984 data, most recent submittal SIP projects that a 16.8% reduction is all that is required to attain by 1987. Missouri's attainment program relies primarily on the Federal Motor Vehicle Emission Control Program (FMVECP) and Reasonably Available Control Technology (RACT) on larger existing sources. The Missouri SIP for Kansas City recently adopted Stage I controls (i.e., controls on emissions due to filling the underground tanks at service stations) but does not yet include other required RACT measures for sources less than 100 tons per year. With the full implementation of these measures and the continued improved effectiveness of the FMVECP, Kansas City will likely attain in the near future, if not by 1987.

Actions Required by the Present Senate Committee Bill

Stage II

As noted above, Stage I rules have only recently been adopted for Kansas City, Missouri. The bill would require the adoption of Stage II regulations as well. Hence, gasoline dispensing stations which have only recently installed control systems would be called upon again to install additional controls. With the proposed adoption of on-board rules by EPA, Stage II can be expected to be quite controversial in Kansas City, especially since the ozone air quality problem is not perceived as being severe (the area will likely be in attainment by 1991) and an equally effective measure, vehicle on-board control, would already be in the process of being phased in.

Conversion of Fleets to Alternative Fuels

This measure has not been analyzed by Missouri and no data is presented in the SIP regarding fleet contributions to the overall emission problem. It is expected that centrally fueled fleets of 50 or more vehicles exist for a) school districts, police, municipal fleets and other governmental entities such as military facilities, b) utilities such as telephone, gas and electric companies. c) some commercial fleets, d) retail and wholesale distributors of consumer products such as soft drinks, beer, bread, dairy products, and e) taxis. Many business fleets and all rental car fleets are expected to be exempt because they could not be centrally fueled.

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The concept of focusing on a program of converting large centrally-fueled fleets to alternative fuels or clean vehicles is sound. Establishing an absolute prescriptive requirement that all these fleets must convert gives the States little flexibility and may ultimately undermine the objective of the measure. Fleets will have concerns regarding fuel costs, fuel availability, vehicle performance, vehicle reliability, maintenance impacts and costs to modify their fuel storage and dispensing facilities. Because of the threat of sanctions, the requirement to bring all affected fleets into compliance, and the limited ability of the State to address the concerns raised, fleets could easily find it less disruptive to close the fueling depot and rely on commercial gasoline dispensing facilities rather than operate a central fuelling facility dispensing alternate fuels. The net result would be greater cost and inconvenience to the fleet with no commensurate emission reduction and, to the extent that any emissions reductions were achieved, would be unnecessary to meet attainment in an area like Kansas City, only marginally in nonattainment.

I/M

At present Missouri only operates a component check for evidence of tampering at the time of safety inspection in the Kansas City area. Although the SIP planning area is presently only for three counties, the State would be required to adopt and implement a vehicle emission inspection program for a six-county area in Missouri around Kansas City. Some aspects of the program would have to be more stringent than the present St. Louis program where the air quality problem is perceived to be worse. For example, the St. Louis program allows manual instruments, has waiver provisions which are less stringent than those required in the bill, and does not require pre-1970 vehicle inspection. The St. Louis program presently also has much more limited geographic coverage than that required for Kansas City.

The State of Missouri would face the problem of initiating in Kansas City a substantially more stringent I/M program than that which was originally imposed on St. Louis, when in all likelihood the area will be in attainment by the start-up date. Further, the State will have little flexibility in tailoring the program to minimize the impact on the area. For instance, the program must extend throughout the MSA even though three of the five counties account for over 85% of the population. Furthermore, heavy-duty gasoline vehicles, diesel vehicles, and motorcycles would require inspection, and misfueling inspection would be extended to pre-1981 vehicles. EPA has allowed States to make these tradeoffs regarding specific elements of the program so long as, in aggregate, the program met the desired level of performance. That flexibility is substantially reduced by the provisions of this bill.

Expansion of RACT to Smaller Sources

Many CTG categories presently apply to sources less than 100 tons per year and several have no size cutoffs at all. Areas such as Kansas City are already required to adopt these measures for these smaller sources. To date, Missouri has resisted expanding the coverage of its rules to smaller sources. The Senate bill would require Missouri to adopt additional measures for sources less than 100 tons per year not covered by a CTG. No inventory data exists on the number of sources this would impact. Most significant categories of small point sources (dry cleaners, degreasers, Stage I, etc.) are already addressed by a CTG. These smaller sources remaining (e.g. bakeries, small printers, small manufacturers with paint spray booth) tend to be less sophisticated operations with limited capital to invest and more likely to have compliance difficulty. States should have the flexibility to determine the importance of controlling these sources to meeting air quality standards in their area and decide where to spend their limited resources to achieve the necessary emissions reductions.

Expansion to MSA Boundaries

Presently, the planning jurisdiction for the Kansas City SIP includes five counties, three in Missouri (Jackson, Clay and Platte) and two in Kansas (Johnson and Wyandotte). The Metropolitan Statistical Area (MSA) extends for 10 counties, four in Kansas and six in Missouri. Of the 1,477,000 people in the present MSA, only 188,000 or 13% live in the five counties not covered by the SIP. No information is available on the increased emission inventory coverage resulting from the inclusion of these areas. While it is appropriate to include this area in the SIP attainment planning jurisdiction, to ensure that the State accounts for their emissions in its overall planning for the area, requiring the application of specific control measures to the MSA unnecessarily reduces the State's flexibility in developing the most appropriate and acceptable SIP for its area. States are better suited to make the necessary tradeoffs on issues such as these.

Adoption of New CTG's

EPA is required by the Senate bill to issue CTG's for the 11 additional source categories specified in the bill. States will then be required to adopt rules for these source categories consistent with the CTG or document that all existing sources in these categories already have RACT control in place. These measures are required without regard to the sources' contribution to nonattainment or any previous State efforts to address these sources. Such an extensive EPA role in defining RACT deters the State from acting to control remaining source categories which might be more appropriate local candidates for control.

Allowing for development of the CTG, State rulemaking, and source compliance, it will be approximately five years after passage of legislation before RACT will be in place for these sources. Implementation of these rules will be required even if, in the interim, the area demonstrates attainment. Further, the State needs to apply RACT to these sources even if the State had already previously adopted control measures for this category. Alternatively, if the State finds that it had imposed measures that go beyond the CTG, it would likely be petitioned by the sources for relief.

Because of the continuing Federal role in defining appropriate control technology nationally and the risk of having its action superseded by a CTG, the State will face significant pressure not to act on any source until a CTG is issued. Since it is unlikely that EPA could address every possible source category, the result will be that controls will be deferred for any source not addressed by a CTG regardless of its potential importance to the local problem.

RACT for NOx Sources

RACT is required for NOx sources under this bill. Based on the SIP inventory for Kansas City for NOx, 18% of the NOx is attributable to mobile sources, 64% to power plants and the rest to other primarily combustion-related processes. Consideration will have to be given to the retrofit of NOx controls on local utilities and other combustion sources without regard to whether it has any air quality impact. Even if a modeling analysis demonstrates that the measure is unnecessary or counter-productive (which is the case in some areas, depending on the ratio of ambient VOC concentrations to NO_x), RACT controls would be required for these sources or the area would face sanctions.

There is no evidence at present that NOx control will help address the ozone nonattainment problem in Kansas City. With the limited nonattainment problem Kansas City faces, the area may be in attainment before those controls are installed. The State has no flexibility other than to impose these technology based controls.

Elimination of "Bubbling and Netting Out"

The provision of the bill prohibits sources from achieving reductions beyond the compliance level at one source in lieu of complying at another. They also narrowly define a stationary source to include each discrete operating unit or activity and combination thereof. Hence all provisions for bubbling or netting out of the New Source Review (NSR) process in the Missouri SIP would have to be eliminated. Missouri presently allows sources to net out of review through a plant-wide definition of source. Missouri is also implementing the bubble policy and has approved bubbles in the past. Presumably, if approved, these bubbles would have to be voided and additional controls would have to be installed by sources which had relied on bubbles to meet air quality provisions. It would also preclude the State from relying on this tool in the future, thereby constraining its ability to find more optimal solutions to emission reduction problems.

Atlanta, Georgia

Background

Atlanta originally demonstrated attainment by 1982. Because of measured violations in 1983, Georgia received a State Implementation Plan (SIP) call in February 1984. The emission reduction required to attain the ozone standard for the Atlanta area has been quite controversial. Georgia regarded the 1983 data as unrepresentative. Although 1984 and 1985 ozone air quality values were substantially lower, violations were recorded in each of these years. Ozone air quality values comparable to those measured in 1983 have been measured in 1986. (The second high value for 1986 was .164 ppm.) The percent reduction projected by Georgia based on the 1982-1984 data was 41%. The plan revision submitted by Georgia in May 1985 only demonstrates a 28% reduction for the Atlanta area by 1987 leaving a 13% shortfall. The most recent SIP submittal relies on the Federal Motor Vehicle Emission Control Program (FMVECP), I/M with anti-tampering provisions, Reasonably Available Control Technology (RACT) on sources emitting more than 25 tons per year, and Stage I vapor recovery (to control emissions from filling underground storage tanks at service stations). Georgia has committed to study additional measures if they are needed to attain. EPA proposed disapproval of this submittal in July 1987 for failure to demonstrate attainment.

Actions Required by the Present Senate Committee Bill

Stage II

Stage I regulations for service stations have only recently been adopted for the Atlanta area. Adoption of Stage II regulations would require these same service stations which will have recently installed control systems to install additional controls. Stage II had been mentioned by Georgia as a possible measure to be studied if necessary for attainment. However, this was prior to EPA's announcement regarding onboard regulations and gasoline volatility rules. Adoption of Stage II in light of EPA's action would be very controversial and would likely require State legislative approval as well as regulatory action. Stage II soon would be superseded by onboard.

Conversion of Fleets to Alternative Fuels

This measure has not been analyzed by Georgia and no data is presented in the SIP regarding fleet contributions to the overall emission problem. It is expected that centrally-fueled fleets of 50 or more vehicles exist for a) school districts, police, municipal fleets and other governmental entities such as military facilities, b) utilities such as telephone, gas and electric companies, c) some commercial fleets, d) retail and wholesale distributors of consumer products such as soft drinks, beer, bread, dairy products, etc., and e) taxis. Many business fleets and all rental car fleets are expected to be exempt because they could not be centrally fueled.

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The concept of focusing on a program of converting large centrally-fueled fleets to alternative fuels or clean vehicles is sound. Establishing an absolute prescriptive requirement that all these fleets must convert gives the States little flexibility and may ultimately undermine the objective of the measure. Fleets will have concerns regarding fuel costs, fuel availability, vehicle performance, vehicle reliability, maintenance impacts and costs to convert their fuel storage and dispensing facilities. Because of the threat of sanctions, the requirement to bring all affected fleets into compliance, and the limited ability of the State to address the concerns raised, fleets could easily find it less disruptive to close the fueling depot and rely on commercial gasoline dispensing facilities rather than operate a central fuelling facility dispensing alternate fuels. The net result would be greater cost and inconvenience to the fleet with no commensurate emission reduction.

I/M

A significant number of operational problems exist with the existing Georgia I/M program. Georgia has made some progress in correcting these problems. However, even if these problems are fully addressed, the Senate bill would substantially alter the existing program.

Adoption and implementation of I/M in Atlanta has not been without controversy. I/M was originally adopted to address only the CO problem. Georgia is making progress in upgrading the effectiveness of its program and has committed to a number of further improvements to increase the program's overall effectiveness. Adoption of this provision would impose a number of other obligations on Georgia. For instance, expansion of the program to 16 counties when the present I/M program only applies to four (recently expanded from three) would be very controversial since, at present, the ozone nonattainment area only covers 11 counties. While this change would increase the coverage presently being achieved, it would also rekindle opposition to the I/M program, especially in the outer, more rural, counties which could jeopardize the entire program. It could divert State resources away from the problems of the existing program toward winning acceptance of the program in the additional areas being added. The bill would further require inspection of cars 13 years and older, misfueling inspections, and inspections of heavy-duty gasoline vehicles, diesel vehicles, and motorcycles.

The State of Georgia could likely get greater improvements with less disruption and less cost if given the flexibility to develop its own alternatives. EPA has allowed States to make these tradeoffs regarding specific elements of the program as long as, in aggregate, the program met the desired level of performance. That flexibility is substantially reduced by the provisions of this bill. Imposing a national vision as to what constitutes an appropriate I/M program in Atlanta, an area with an ongoing program and commitment to improved implementation, will be be criticized as unreasonable and counter-productive interference in local decisions.

Expansion of RACT to Smaller Sources

Many CTG categories presently apply to sources less than 100 tons per year and several have no size cutoffs at all. Areas such as Atlanta are already required to adopt these measures for these smaller sources. While it has extended its coverage only to CTG sources of 25 tons per year, Georgia has also recently proposed expanding the coverage of its rules to all CTG sources. The Senate bill would go beyond this and require Georgia to adopt additional measures for sources not covered by a CTG. No inventory data is available to us on the number of sources this would impact. Most significant categories of small point sources (dry cleaners, degreasers, Stage I, etc.) are already addressed by a CTG. The remaining smaller sources (bakeries, small printers, small manufacturers with paint spray booths, etc.) tend to be less sophisticated operations with limited capital to invest and more likely to have compliance difficulty. States should have the flexibility to determine the importance of controlling these sources to meeting the air quality standards in their area and decide where to best spend their limited resources to achieve the necessary emission reductions.

Expansion to MSA Boundaries

Presently, the planning jurisdiction for the Atlanta SIP includes eleven counties, and the I/M program applies to four. The Metropolitan Statistical Area (MSA) extends to 16 counties. Of the 2,380,000 people in the present MSA, only 257,000 or 11% live in the five counties not covered by the SIP and 579,000 or 29% live in the 12 counties not covered by the I/M program. No information is available on the increased emission inventory coverage resulting from the inclusion of these areas. While it is appropriate to expand the SIP attainment planning jurisdiction to account, for planning purposes, for emissions from the entire MSA, requiring the application of specific control measures to the entire MSA unnecessarily reduces the State's flexibility in developing the most appropriate and acceptable SIP for its area. States are better suited to make the necessary tradeoffs on issues such as these.

Adoption of New CTG's

EPA is required by the Senate bill to issue CTG's for the 11 additional source categories specified in the bill. States will then be required to adopt rules for these source categories consistent with the CTG or document that all existing sources in these categories already have RACT control in place. These measures are required without regard to the sources' contribution to nonattainment or any previous State efforts to address these sources. Such an extensive EPA role in defining RACT deters the State from acting to control remaining source categories which might be more appropriate local candidates for control.

Allowing for development of the CTG, State rulemaking, and source compliance, it will be approximately five years after passage of legislation before RACT will be in place for these sources. Implementation of these rules will be required even if, in the interim, the area demonstrates attainment. Further, the State needs to apply RACT to these sources even if the State had already previously adopted control measures for this category. Alternatively, if the State finds that it had imposed measures that go beyond the CTG, it would likely be petitioned by the sources for relief.

Because of the continuing Federal role in defining appropriate control technology nationally and the risk of having its action superseded by a CTG, the State will face significant pressure not to act on any source until a CTG is issued. Since it is unlikely that EPA could address every possible source category, the result will be that controls will be deferred for any source not addressed by a CTG regardless of its potential importance to the local problem.

RACT for NOx sources

RACT is required for NOx sources under the bill. Based on the Atlanta SIP inventory for NOx, 50% of the NOx is attributable to mobile sources, 34% to point sources and the rest to other primarily combustion-related processes. Consideration will have to be given to the retrofit of NOx controls on local utilities and other combustion sources without regard to whether it has any air quality impact. Even if a modeling analysis shows the measure is unnecessary or counter productive (which is the case in some areas, depending on the ratio of ambient VOC concentrations to NO_x), RACT would be required or the areas face sanctions.

There is no evidence at present that NOx control will help address the ozone nonattainment problem in Atlanta. The State has no flexibility other than to impose these technology-based controls.

Elimination of "Bubbling and Netting Out"

The provisions of the bill prohibit sources from achieving reductions beyond the compliance level at one source in lieu of complying at another. They also narrowly define a stationary source to include each discrete operating unit or activity and combination thereof. Hence all provisions for bubbling or netting out of the New Source Review (NSR) process in the Georgia SIP would have to be eliminated. Georgia presently allows sources to net out of review through a plant-wide definition of source. Georgia has supported the use of the bubble policy in Georgia and has considered using the policy in specific instances. The bill would preclude the State from using this approach to meet air quality provisions, thereby constraining its ability to find more optimal solutions to emission reduction problems.

Senator GRAHAM. If I could use my seconds remaining for one final question on another section of the bill relating to acid rain. The President and the Prime Minister of Canada have had an ongoing discussion on this issue. Envoys were appointed representing the two Nations. A high level of expectation I think has been created that some significant steps were going to be taken.

Do you believe that the commitments which this country has made to our neighbor, Canada, are consistent with the standards that are contained in the acid rain provision of this bill, and are the comments which EPA has made in the evaluation of this bill a statement of the Administration's commitment to Canada?

Mr. THOMAS. I guess it's difficult for me to equate those two things. We have made a number of commitments to Canada over the last several years. I have participated and supported the President as he has worked on that issue with the Prime Minister, and we are moving forward in implementating those commitments.

The commitments are, for instance, consistent with the clean coal technology provisions of the bill; they are also consistent with the overall approach that we have taken in dealing with Canada. We also have a review underway of issues that the Prime Minister and the President discussed in their last summit related to a protocol, what would be incorporated in that protocol dealing with air pollution across the borders beyond and incorporating the commitments that have been made on clean coal technology.

So, I think, yes, some of the things you have in your bill are very consistent with exactly what we're doing in dealing with the issue with the Canadians. Other things in your bill go far beyond the kind of commitments that we have made to the Canadians. For instance, the acid rain controls specified in this bill have certainly not been a part of a commitment that we have made to the Canadians.

Senator GRAHAM. I wonder if you could supplement your remarks on this issue by a listing of what are the United States commitments to Canada and the degree to which you believe this legislation meets, falls short of, or is excessive in terms of those commitments?

Mr. THOMAS. I would be pleased on both of those requests for additional information, to submit that information, on the final one with the clear understanding that we are currently in the process of reviewing with Canada whether in fact different or, additional commitments would be made. So, with that caveat, I would be pleased to submit that information.

[The information requested follows:]

Q. To what extent would the provisions of the Clean Air Act Reauthorization bill reported by the Senate Subcommittee on Environmental Protection fulfill the assurances regarding acid rain which President Reagan has given to Canada and the recommendations of the Special Envoys on Acid Rain.

A. The Presidential assurances and Special Envoys recommendations regarding acid rain, and the corresponding provisions of the Senate Environmental Subcommittee bill, are compared below:

I. CONTROL TECHNOLOGY DEMONSTRATION PROGRAM

Presidential Assurances and Special Envoys Recommendations	Senate Environmental Protection Subcommittee Bill
o $2.5 billion in federal funds over five years, to be matched or exceeded by industry contributions, for innovative control technology demonstration projects. (March 18, 1987 statement)	o $2.5 billion ($500 million per year) for FY 1988-1992 for 50% federal contribution to clean coal technology projects. (Part F, Section 191-193, 195)
o Advisory Committee established 4/27/87, including state government and the government of Canada, to advise the Secretary of Energy on funding and selection of innovative control technologies projects. (March 18, 1987 statement)	o Advisory Committee to be established and co-chaired jointly by Secretary of Energy and Administrator of EPA, and include ten members (5 selected by DOE, 5 by EPA) from state or local governments or planning organizations with air pollution expertise and three members nominated by Environment Canada. Committee to make recommendations to Secretary or Administrator on acid deposition precursor control policy and clean coal technology project selection. (Section 194(a))
o Technical expertise for project selection to be provided by U.S. EPA and DOE. (Special Envoys recommendations)	

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Presidential Assurances and Special Envoy Recommendations	Senate Environmental Protection Subcommittee Bill
o Innovative Control Technology Projects to be selected, as fully as practicable, using the criteria recommended by the Joint Envoys (March 18, 1987 statement). These include:	o Projects to satisfy each of the following criteria: - Provide experience with respect to commercial scale operation of the technology
- Potential for emission reduction, measured as a percentage of SO_2 and/or NO_x removed	- The technology will either significantly reduce SO_2 or NO_x emissions (measured as a % removed), or achieve reductions at a cost per ton substantially less than conventional technology
- Number of existing sources on which the technology could be retrofit	- The technology appropriate for retrofit on a significant number of existing coal-fired sources of SO_2 or NO_x
- Contribution (due to size and location) of existing sources on which the technology could be retrofit to transboundary air pollution	- Contribute to a reduction in transboundary movement of acid deposition precursors from U.S. to Canada
- Demonstration projects to result in some near-term reductions in U.S. air emissions that affect Canadian ecosystems	- The project uses U.S. coal and is in the U.S.
- Cost per ton of reductions	- Subject to above criteria, the projects have the least cost per ton of emission reductions and represent a broad variety of coal types and reasonable geographic diversity (Section 193(d))
- Applicability of the technology to facilities currently dependent upon high sulfur coal (Special Envoys recommendations)	

ICHC

II. REGULATORY

Presidential Assurances and Special Envoys Recommendations	Senate Environmental Protection Subcommittee Bill
o Task Force on Regulatory Relief to review federal and state economic and regulatory programs to identify opportunities for addressing environmental concerns under existing laws, incentives and disincentives to deployment of new control technologies. Its report is scheduled to be released this fall.	o New regulatory program established to achieve 12 million ton SO_2 (14 million ton actual reductions, counting 2 million to projected emission growth in the absence of a program), 4 million ton NO_x emission reductions from 1980 levels by 1996
	o Secretary of Energy to promote rapid deployment of existing clean coal technologies (Section 191(a))
o Existing U.S. authority related to transboundary air pollution to be reviewed, and review be made available to Administrator of EPA (Special Envoy recommendation, completed March, 1987)	o Administrator of EPA to promote vigorous enforcement of existing laws and regulations in a manner responsive to transboundary air pollution problems (Section 191(b))

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III. INTERNATIONAL COORDINATION

Presidential Assurances and Special Envoys Recommendations	Senate Environmental Protection Subcommittee Bill
o Consideration to be given to establishment of an accord with Canada on acid rain (April 5, 1987 statement to Canadian Parliament by President). The U.S., through the Bilateral Advisory and Consultative Group, is reviewing the Canadian proposal for this accord.	o Negotiations to be instituted with Canada and Mexico toward a tripartite agreement to minimize projected and existing levels of air pollution, create an "international framework" to control sources of transboundary air pollution, establish a North America air quality monitoring network, encourage increased research and dissemination of information on control strategies, and establish uniform minimum levels of protection for public health and the environment (Section 204(a))
o Agencies contemplating changes to laws and regulations that may alter the flow of transboundary pollutants should give timely notice to Canada (Special Envoys recommendations)	
o Acid rain should remain high on the agenda of U.S. - Canadian summit meetings, with at least some cooperative Cabinet briefings (Special Envoys recommendations)	o Negotiations to be instituted at the United Nations and elsewhere to apply uniform standards of performance for emission sources (Section 204(a))
o A bilateral advisory and consultative group on transboundary air pollution should be established. It should be comprised of diplomatic and environmental management officials, and provide the forum for discussion and first-level consultations on transboundary pollution issues (Special Envoys recommendations)	o Canadian negotiations to seek assurance that prior to effective date of Title 1 controls, Canada will adopt and enforce comparable reductions including technological systems of continuous emission reduction (Section 204(c))

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IV. RESEARCH

Presidential Assurances and Special Envoys Recommendations	Senate Environmental Protection Subcommittee Bill
o Dry deposition measurement systems should be developed and deployed (Special Envoys Recommendations)	o EPA to study emission tarrifs (Section 205)
o Watershed models and data should be developed (Special Envoys Recommendations)	
o The relationship of surface water acidification to biological changes should be studied (Special Envoys Recommendations)	
o Forest effects of acid rain research should be accelerated (Special Envoys Recommendations)	
o Materials effects should receive increased attention to quantify extent of current damage, resources at risk, and prognosis for future damage (Special Envoys Recommendations)	
o Role of heavy metals in aquatic and forest damage should be investigated (Special Envoys Recommendations)	

Senator GRAHAM. Thank you, Mr. Chairman.

Senator MITCHELL. Thank you very much, Senator Graham.

Mr. Thomas, according to the available data, there are 70 areas in nonattainment. Is that correct?

Mr. THOMAS. Approximately.

Senator MITCHELL. Yes. And you expect to have more current data in the near future?

Mr. THOMAS. The way we look at nonattainment for ozone specifically is we average over 3 years. In other words, we don't allow more than one exceedance per year of our standards. So we look over a 3-year period of time. If there are more than 4, then you are out of attainment. So each year we roll that figure.

Senator MITCHELL. All right. And we hope that those figures will show a lesser number of areas in nonattainment. As of now it's about 70. And about a third of those areas, 23, had State plans submitted prior to 1982, which showed they would reach attainment in 1982. They were not in attainment in 1982. They are not in attainment now. They did not receive an extension beyond 1982. They have not, in most of their cases, even implemented what they had in their plans prior to 1982.

Yet, the EPA has not notified them that their plans are in any way deficient, or that they are not complying with the plans.

Now, you just said in response to an earlier question—I couldn't get it exactly—next month you are going to be proposing a mechanism for calling in States that don't meet attainment. That is 5 months before a deadline that has been in the law for 5 years. And the record—I am not going to read it all—is filled with statements from State officials saying that the EPA doesn't do anything in this area.

Now, you are quite right when you said that what we have here is we have very tough decisions and local and State officials don't want to make those decisions to require their people to take unpopular actions. They want to be able to say the Federal Government made us do it.

So I acknowledge that. But this record is filled with statements by State officials from all over the country. So my question to you is why haven't you done this before?

Mr. THOMAS. But we have. I don't agree with the database you're using there, Senator. And I would like to, if we could, be sure that we compare data on that. As a matter of fact, a number of the areas that have plans to meet the 1982 attainment date in fact got calls for new State implementation plans when they didn't meet good examples.

Atlanta didn't meet that date, and we went out and took a new call for Atlanta to develop a plan to attain that standard. Atlanta developed a plan, and it's not that Atlanta didn't implement everything that was in their plan, they really had. They had gone forward and implemented all the controls in their plan, but they had not been able to attain. It had to do with growth and it had to do with a variety of other things as to why they didn't. So Atlanta submitted a new plan of additional controls the city is going to put in place. And as you probably know, about a month ago I proposed to disapprove it and impose sanctions on Atlanta because I did not feel it could demonstrate attainment by 1987.

That is an example of those cities. We have gone forward with SIP calls largely the 1983-1984 time frame on those areas that didn't meet the standards.

Let me say we are also reviewing nonimplementation. I sent letters to 40-something Governors oh, a few months ago, talking about nonimplementation. My general impression is that the States have gone forward pretty responsibly to implement many of the provisions of their State implementation plans, and the plans were not easy to implement. Some of States have had an incredibly difficult time in implementing their plans. Stage two is a classic example of one that has been very difficult. Inspection and maintenance is another.

Interestingly enough, the measures that are directly oriented towards the public which you are trying to protect are the ones the States don't want to implement. The public doesn't want that kind of inconvenience. So those are the ones that have been the toughest to implement.

But overall, the States have implemented a large portion of their plans. But we are going through a full review on nonimplementation. So to characterize it as that we have done nothing or that we haven't gone forward and moved to get the additional measures that are going to be required or characterize it that we are not doing anything now, that we have just got to try, with your data and my staff's, set that record straight.

Senator MITCHELL. But nonimplementation is a requirement that is now over 10 years old.

Mr. THOMAS. That's right.

Senator MITCHELL. What you're telling us is that just recently you have come around to reviewing nonimplementation.

Mr. THOMAS. No. I am saying that it's an ongoing process, but particularly as I look at the areas that are not going to attain by 1987, just as I did the ones that did not attain by 1982, I looked at first where were they on implementing those things that they said they were going to do as a part of the overall process. Our regional air staff and the air regulators interest continuously on these issues. But in a formal way I looked at where the States were with implementation because I know I am going to require them to put on additional control measures. That is the context of that nonimplementation formal review that I have under way now.

Senator MITCHELL. Well, my time is up. I would just say that not only is there a policy difference, but it's obvious that there is a considerable difference of the facts upon which we are to draw conclusions and attempt to devise policy. The overwhelming weight of the evidence presented to us prior to today is, as I have suggested, most of it's from State and local officials highly critical of the EPA's performance.

We will try to have the staffs work it out. Obviously, we can only rely on the numbers that we are provided, and I presume you do the same, so that we can at the very least agree on some set of facts which will permit us to draw appropriate conclusions on.

Mr. THOMAS. Senator, also, the point you made about the State and local officials being highly critical of EPA, I have a lot of respect for the State and local air officials, although I must say as they continue to criticize me, that is somewhat eroding. [Laughter.]

Senator MITCHELL. Oh, I don't think that's necessary. A lot of us criticize some of your things, but we don't lack respect for you.

Mr. THOMAS. Thank you. They have made hard decisions. I think they experience frustration, like we all do, on the ozone issue in trying to implement the controls that are required because you're dealing with a large number of sources, you're often dealing with sources that have direct impact on the public that doesn't want those things implemented, and it's far easier for them to come in and say the Federal Government made me do it, I had no choice, than it is to say this is a part of our overall plan to achieve pollution control.

Some of that frustration I think is what you hear from those State air regulators. I must say I get somewhat different reactions from State Governors than I do from State air regulators.

Senator MITCHELL. They agree with you?

Mr. THOMAS. I think they have a little more sensitivity to the issue of State flexibility and the fact that we have got to share responsibility and the fact that their State does need the option to look across their pollution control sources and some sensitivity to the issues I am talking about. And maybe it's not the full extent of the frustration that the air regulator faces.

Senator MITCHELL. I just am advised that the figures that I used are from information provided to us by EPA. But I guess we will have to try to look at that again.

Mr. THOMAS. I will find out who gave it to you and meet with them. [Laughter.]

Senator LAUTENBERG. I want to challenge that source, Mr. Chairman. [Laughter.]

Senator MITCHELL. That's what I am afraid of. [Laughter.]

Senator Simpson.

Senator SIMPSON. Mr. Chairman, I thank you, and I thank my colleagues for listening as I went through my spirited opening remarks. They weren't done for humorous effect. They were done for impact of a very frustrated member of this committee, who tries to do his work and do it thoughtfully, just as this chairman does and just as Frank Lautenberg or John Breaux or Bob Graham, or any of us. It is a serious thing that we deal with here, and someone said, and it is so true, that somehow if you're not fully into the ultimate experience, that you are somehow against clean air or against clean water or against Superfund. And that is not me. That is not me. That won't wash with me.

But I know what impatience does. Impatience and the word frustration has been used several times, as I came back in. I see that same impatience with everything that requires sound medical and scientific evidence, whether it's Agent Orange—that gets you pretty impatient, why don't you do something. Even the court finally admitted, you know, you better take a settlement, there is no way you will ever get that really resolved.

Toxins, we bought up a whole village, a while back. I think that was a mistake. It gave the wrong signal. Atomic veterans. All of that is impatience, and I understand that. But you can't just direct the Federal treasury of the United States to correct that without sound medical and scientific evidence. And that is all I have ever held for, and to say that we have done nothing in these things is just not so. And that is unfortunate. It's like dealing with the budget, when somebody says you've cut our budget, and all we've done is cut their recommended increase. And it goes out into the land that we've cut their budget. What they asked for was another $10 billion or million or whatever, and we cut that amount and you say, well, you got $2 million more than you did last year. I know, they say, but they cut our increased request.

So we get the bum rap for that, too, and that's why we're going to deal with a $2.8 trillion debt limit and a $1 trillion annual budget and someday they will call upon us to resolve that and it won't matter who's in the White House or who's in this place or how many D's there are behind people's names or how many R's behind people's names, it's going to catch us, and we can all point the blame in boney-fingered ways.

I wanted to ask you a couple of questions. This acid rain bill includes a requirement that each powerplant, when it reaches the 30-year life age, must comply with the 0.9 pounds per million BTU's emissions rate. Could you give us your evaluation of that provision and how much it will cost—how much current utility capacity would likely be forced to install scrubbers and what effect it might have on any future growth in SO_2 emissions?

Mr. THOMAS. Actually, in the context of the way the bill is crafted, the 30-year 0.9 requirement will probably mean that you're talking about a good bit of expense in an area where you've already got an awful lot of control in place. In other words, you've already got an overall emissions cap process to control growth. So you, in fact, will be requiring very, very tight control at high cost—meaning some scrubbers—and you may be requiring, in many places, facilities that have already gone to a low sulfur coal to put on a scrubber. You tie a number of things together in this acid rain bill; in other words, you deal with growth, you deal with—you've got all kinds of concepts in it, and the end result is that you've got a very, very strong control program that's going to cost a lot of money.

Senator SIMPSON. I still have difficulty with those who require the ultimate, the perfected, the totally authentic device.

Well, there are some remarkable changes in definition here under required control technology and emission rates, offsets by reductions. If an area cannot meet any of the requirements of the bill, the EPA would have to implement sanctions. It appears to me that an area like Los Angeles or Houston would find it most difficult to meet these severe requirements; and in order to get some limited extension of time, possibly only until 1991, those areas have to buy into all the requirements of the bill.

Just quickly, then, what would those urban areas gain by complying with the subcommittee's bill instead of the current law, which requires sanctions?

Mr. THOMAS. Well, you've got some different sanctions here. For instance, you have a sewer ban here, which I have found—operating under the Clean Water Act—is a very tough sanction. We deal with that in some areas; and, as you probably know, local and State governments deal with that. That's incorporated in here. I think, in fact, that the way that that sanction—which I'm not suggesting may not be a sanction that in some cases may be an appropriate one, but when you tied it to all the areas and all the measures you tied it to, I think in many cases it will result in them getting that very tough sanction—as opposed to an existing law where you don't have that sanction. I think some of the sanctions under the existing law need to be clarified. For instance, it doesn't make any sense, I don't think, to cut off the air grant money we give to places under the Federal program because they're not meeting air standards. Then they don't have the money from us to try to fashion up a plan to meet the standards. So it's Catch-22. Clearly the existing law, I think, needs to be clarified on the sanctions, and I've pointed that out.

The points you've made, though, there are a number of provisions in here with very significant impact, and it's hard to determine exactly what they would be. For instance, the prohibition on netting will have a major impact and very little gain, I think, as far as pollution control is concerned in growth areas, the way it deals with bubbling and offsets, the way that there's a difference in the definition of "best available control technology" from existing law. Those things, while they appear minor in the law, have major implications. There is no law system out there that had worked over the years to work under the Clean Air Act, so there is control on pollution but at the same time we try to accommodate with some flexibility the need for a little growth in some areas, and those things are a part of that accommodation. And these would have very significant impacts on that.

Senator **Simpson**. Mr. Chairman, I thank you. And I want to pledge to you—and I've done that before and met the promise—I really do want to get a bill. I promise you, and I have wanted to do that for 8½ years, and we will if we use common sense and be terribly realistic; because you, sir, are a legislator, and the action of a legislator is to get something passed. And to get something passed, I'll work with you and try to be realistic and legislate, because that is what has held this up. It has nothing to do with any Administration, whether it was Carter or Reagan or anybody else. It was Congress failing to put together a bill that's got common sense, is reasonable, is realistic, and passable. That's what I pledge to help with.

Senator **Mitchell**. Well, I thank you very much, Senator, and we look forward very much to working with you on that. I think we do share a common objective. We're all going to work hard toward that objective.

Senator Breaux.

Senator **Breaux**. Thank you, Mr. Chairman. I'll try and be very brief.

With regard to title II, the acid rain section, Mr. Thomas, you have some pretty strong criticisms. One, on page 15 you say that title II in our bill is "internally inconsistent," and you talk about some standards with regard to reducing acid rain emissions while at the same time trying to promote clean coal technology. You point out that the control decisions under our bill would have to be made before the results of the technology demonstrations were available.

Can you come up with a suggestion as to how that should be dealt with or more detail about what you mean?

Mr. **Thomas**. Basically, if you look at that time line, what you would have to do is you would have to change your time line, I think, on the controls required to accommodate the demonstrations that would come out of your clean coal technology program, probably by about 3 to 5 years, maybe a 4-year time frame; in other words, right now you've got binding contracts for technology required under your control program at a point when demonstrations are coming out. You need to extend your control requirements by probably at least 4 years if you're going to accommodate any of the kind of demonstrations as a part of the overall process that the States and utilities are going to use in making choices. In other words, they're going to look across what their choices are. If they have to make them 1 year from enactment of this bill, their choices under this bill are going to be scrubbers.

Senator **Breaux**. Then what you're saying, in layman's language, is that we're saying, "do this within a 1-year period." But perhaps in 2 years we may have a new technology that we're spending a couple billion dollars on that may far exceed accomplishing the goals that we are mandating in the act through a different methodology?

Mr. **Thomas**. Clearly, the clean coal technology portion of this bill is saying, let's lay out a range of alternatives for control of these pollutants and demonstrate them so they could be available for the sources we have to control. We all agree on that as a proper approach, to go forward with a shared private and Government approach to try to do that. If we're going to take advantage of that—that you've got in this bill—in our control program, we've got to look at the time frame that we're going to require those people to make control decisions. The way it's set up now, they won't have that information in front of them.

Senator **Breaux**. Could you make some recommendations on what type of a time schedule would fit with what you are recommending and submit it to me?

Mr. **Thomas**. Clearly. I will.

[The information requested follows:]

Question. Would the mandatory control program of this bill benefit from the technology demonstration program? How could the coordination of the two programs be improved?

Answer. As presently structured the mandatory control program could not benefit from the technology demonstration program, because decisions and commitments regarding control technologies are required before results would be obtained from the demonstration projects. To take the technology demonstration results into account, states would need to be able to propose plan revisions at least until December 1993, with EPA approval of the revisions up until 1994 and final compliance (to the extent compliance utilizes innovative technology) in December 1999.

Senator **Breaux**. You talk about sanctions, and the Chairman was asking about that. You make some criticisms on the sanctions that we currently have in the bill and how they are to be implemented. On pages 9 through 11 of your testimony you talk about how you don't have enough flexibility. I've got Baton Rouge and Lake Charles and a whole bunch of areas in Louisiana that make an awful lot of products that the rest of the country needs very desperately and is very pleased to get them, that are close to being in compliance but are not quite there. And I'm concerned, I guess, as many are. You've got construction bans, restrictions on sewer permits, cutting-off of highway funds—you're talking about shutting down a city if you hit them with the entire block of weapons that this bill mandates. What are you suggesting? That we give you total flexibility in doing one, not two, or combinations of various sanctions?

Mr. THOMAS. No. The problem we run into under the bill with sanctions is that you've got—when you look at various parts of the bill, you've got a series of mandates, like enhanced I&M, Stage II controls, alcohol fleet programs, which will have to be put into place everywhere regardless of how much controls are required. Those are all very tough programs, to put in place. For instance, the alcohol fleet program—I don't think there's any way you could do it in the time frame you're talking about. Then you tie that to a sanction that's a very tough sanction.

That's what I'm talking about, plus if you take a sanction like a construction ban and tie it in with something like a netting restriction, it will be a very restrictive sanction, more so than existing law, more so than is probably required. Those are the kinds of interactions in this bill that I'm talking about when I talk about "inappropriate sanctions." I would suggest clarifying existing sanctions. I could make suggestions on some of the sanctions I don't think are appropriate, ones that are appropriate that need to have a much more clear definition as to when they would be imposed, and possibly some additional ones, possibly not inconsistent with some of the ones you've thought about. But clearly, they should not be tied to the kind of automatics that you've got that I know are going to result in those sanctions being imposed. Inappropriately, I believe.

Senator BREAUX. I'm trying to wade through the bill; honestly, it's just an absolute nightmare to try and understand everything that's in there— it seems like, on hazardous air pollutants, we're telling you that you should, within 90 days, come up with a list, with regard to toxic air pollutants. We're saying that you have 12 months to come up with a list of those, take some of them from the existing list, section 313 of the Emergency Planning and the Community Right-to-Know Act, promulgate that list, and the standards that you judge those pollutants against—it seems to be the effect on an individual person versus the effect on an area. Can you give us any discussion on what that means to you? What type of problems would that cause EPA to have to regulate everything that could possibly have an effect on an individual person versus a whole area?

Mr. THOMAS. Well, title V requires a good bit of time. We're still looking at the implications of title V. The title includes substantial changes as far as the kind of standards that we previously had in some regards on air toxics. It does clearly look at maximum individual risk as the basis for trying to come up with standards for control; in other words, the maximum dose that an individual would get at the fence line over a 70-year life expectancy if he breathed it all the time. It's the kind of thing you'd be looking at as far as the risk level is concerned. And the statute seems to speak to—you want to eliminate that risk. In other words, on the hazardous side, you want to eliminate that. You want a zero risk. Well, that's just not possible for a range of pollutants that, through our studies, we feel are possible carcinogens or probably carcinogens as a result of animal studies and epidemiological studies. We think that they are non-threshold pollutants, which means that even though it is a very small risk, there is some additive risk if you are going to be exposed to that pollutant. We don't think you can control sources to a zero risk point and have sources. So what that would mean is, you would have to eliminate some of those industries if you went with that kind of zero risk.

Senator **BREAUX**. Would it be possible to ask for some assistance in suggested language which would tend to try to correct that particular aspect, not saying whether you support title V or oppose the whole thing?

Mr. **THOMAS**. Well, I think the existing law is the way to deal with that problem.

Senator **BREAUX**. Okay. That's what I thought.

Mr. **THOMAS**. And the language in section 112, I think, which is the air toxics section of the Clean Air Act, is the way to deal with it.

Senator **BREAUX**. Okay. Assuming that title V one day would be written into law, give me some suggestions as to how you think that this zero standard, which you feel is not possible, could be improved upon and made workable, knowing that that's not your preference.

Mr. **THOMAS**. We will do that. And the overall approach that we've got to take in air toxics is one of looking at, as you say, overall risk, and going after most of that risk to get that risk down. So if you've got a series of source categories, like synthetic-organic chemicals that I talked about, in totality we think that if we add all of the risk up we may be talking about an additional 20 to 25 excess of cancer cases a year. From our risk estimates, that's a source category that we've gone after. Most of the source categories are a good bit smaller than that. So trying to take the area risk or aggregate risk approach to identifying and going after sources is the way we think you need to do it. We'd be glad to give you some language in that respect.

Senator **BREAUX**. Thank you, Mr. Chairman.

Senator **MITCHELL**. Thank you, Senator Breaux.

Senator Lautenberg.

Senator **LAUTENBERG**. Yes, Mr. Chairman. A couple things.

One, Lee, very quickly, the existing law is doing so well. Why has it taken 17 years to regulate seven pollutants?

Mr. **THOMAS**. Well, first, the air toxics issue is dealt with in any number of sections of the Clean Air Act and other acts. As I indicated, some of the largest parts of the problem that we have tried to deal with we have dealt with other than under section 112. Wood stoves is a good example; particulate matter with diesel fuel; looking at pesticides under FIFRA; those are all things that we are dealing with that are not under section 112. Under section 112, as you say, we have seven pollutants—seven chemicals—where we have hazardous air pollutant standards. That means they're required. We've got two more where we've got proposals out for comment now. We've got 10 more that we've indicated that we will go forward with proposed regulation——

Senator **LAUTENBERG**. It's a long way to go.

Mr. **Thomas**. It's not a long way to go. I mean, if you look at the overall——

Senator **Lautenberg**. Are you satisfied with the pace?

Mr. **Thomas**. Yes, if you look at the overall amount of the problem that we're dealing with, it's most of it.

Senator **Lautenberg**. Let me ask you this question. Chromium, in your chart of things, 11 percent of the proportion of air toxic problems—let me ask you what you've done under that heading to control chromium. What kind of rules have there been under the various headings there, NESHAPS, toxics, etc. Let's go one by one. What's happened under NESHAPS, Lee?

Mr. **Thomas**. Well, I'm probably going to have to let Jerry Emison, who manages that program for me, get into the specifics on it. But just recently, for instance, I've gone forward to establish guidance for new municipal waste combustors, as an example, and am proceeding to develop a regulation for new source performance standards for waste combustion.

Senator **Lautenberg**. That's you?

Mr. **Thomas**. That's me. I just did that in the last several weeks, established the guidance for new waste combustors.

The Sludge Task Force that's mentioned, that's up there, we in fact are on a schedule of proposed regulations for sludge management at present. But Jerry, you may want to add to that as far as the——

Senator **Lautenberg**. But there are no regulations in place in those two categories? It's just the Task Force——

Mr. **Thomas**. Well, the guide for waste combustors is in place. In other words, all new waste combustors——

Senator **Lautenberg**. The last few weeks, you said?

Mr. **Thomas**. Yes, as far as the guidance is concerned.

Senator **Lautenberg**. Mr. Emison, under NESHAPS——

Mr. **Emison**. Chromium was one of the compounds which we indicated that we were going to move forward and develop a NESHAPS for about a year and a half ago. We are doing that, and——

Senator **Lautenberg**. There are no rules?

Mr. **Emison**. We are developing rules——

Senator **Lautenberg**. But they're not there now?

Mr. **Emison**. We will have those prepared for proposal within the next eight or nine months.

Senator **Lautenberg**. Under TSCA?

Mr. **Emerson**. We are looking at using TSCA as one of the authorities. It depends on the source category, which—for cooling towers, for example, TSCA would be the way we're looking at it.

Senator **Lautenberg**. Okay. So it's fair to say that this 11 percent contributor at this point, aside from the proposals of the last few weeks, doesn't have any rules on how to deal with it?

Mr. **Thomas**. I think that is a fair statement. It's got a plan in place that is proceeding to deal with it. It's got one set of guidance that is in place right now as far as implementation. We feel that with an overall plan—you're talking probably the next year or two years, we'll deal with chromium as far as controlling it.

Senator **Lautenberg**. Okay.

Lee, on page 4 of your testimony you make reference to the fact that we could be losing public support if we go ahead with this and we put Federal controls everywhere without regard to the suitability of local circumstance. I wish you could read the mail I get from people in New Jersey. They strongly, typically, endorse measures that are before this subcommittee.

Do you really think—if we set industry concerns aside for a moment—that the average citizen of this country is worried about Congress or EPA doing too much about acid rain and air toxics and ozone nonattainment?

Mr. THOMAS. You know, unfortunately, I think the average citizen in America doesn't have much feel at all for what we do in these areas. Where they really begin to get a feel for it is when we do something that impacts on them as an individuals, and then I wish you could read the mail I get. They then get a clear feel for what an inspection and maintenance program means, and that's when the general public seems to understand specifically what "implementation of environmental statutes" means. In the broad sense, they support very strongly—the polls Senator Mitchell talked about—no question, they support environmental protection. As Administrator of an agency who has that kind of mandate, it is a very strong mandate to have and one that you take comfort in when you make decisions. But that's in the general sense; do we want to protect the environment? When it comes down to the specifics, I think the public has to get a specific result before they have a reaction to it. And in many cases, they have virtually no idea what the specific results are we're talking about in bills like this.

Senator LAUTENBERG. If it smells bad, tastes bad, makes you cough, the air ain't good, and I think that's——

Mr. THOMAS. Well, with ozone you can't see it and you can't smell it, so they don't know it's there.

Senator LAUTENBERG. Oh, people are very worried about that because they are aware of the fact that somehow or other there may be a contribution to the skin condition, etc.

Mr. THOMAS. But, Senator, it doesn't translate into support for measures like inspection and maintenance. I mean, I've got cities where surveys show that 90 percent of the people support clean air and 95 percent of the people oppose inspection and maintenance.

Senator LAUTENBERG. Right, but you didn't go to specifics here. You said, "mandate Federal controls everywhere without regard to their suitability." I mean, that's——

Mr. THOMAS. That's what I'm talking about.

Senator LAUTENBERG. Mr. Chairman, thanks very much. I am sorry that Senator Simpson isn't here, because I think he's right; I think we ought to introduce some common sense into these proceedings, change the name of the bill to "The Common-Sense Approach to Improve Air Quality." Maybe that will help.

Thank you very much, Mr. Chairman.

Senator MITCHELL. Thank you, Senator Lautenberg.

Well, Mr. Thomas, you have been here a very long time, and I don't want to protract it. I have a very large number of questions remaining to be asked, but I will submit them in writing.

Senator MITCHELL. I just wanted to ask one because you mentioned the I&M programs in response to the last question from Senator Lautenberg. You repeatedly, in your statement, endorsed the need to improve in-use performance of mobile sources throughout their operating lifetimes, and you say that "inspection and maintenance programs have been shown to be a very effective way of controlling hydrocarbon and carbon monoxide emissions from automobiles." As you know, the law already requires inspection and maintenance programs in those areas that have not been in attainment since 1982, although many of them haven't adopted such programs.

But in your statement, you oppose the legislative proposal for tighter I&M measures in areas that are not in attainment by 1987.

Mr. THOMAS. Senator, I don't oppose the inspection and maintenance program; as a matter of fact, I support it, as you indicated. I think it is a very good program to ensure with in-use reliability as far as emission control is concerned. I used an example of the difficulty in implementing programs that the public finds are directly intrusive as far as their particular lifestyle is concerned.

All areas have implemented the inspection and maintenance program as required. I personally had the pleasure of working with many of them on implementing it. I also had the pleasure of imposing sanctions on Albuquerque and Cleveland for not implementing it, so I know the difficulty that they face in trying to implement that program. But I, for instance, will support—and probably will go forward; you'll see me—under the existing law with the enhanced inspection and maintenance program in many more areas as an appropriate control requirement. I just don't think it needs to be mandated in all areas because I don't think it's appropriate in all areas.

Senator MITCHELL. So it's not the substance of the proposal, but on whose authority it would be done?

Mr. THOMAS. It's that flexibility, do you need it in this area versus that area. And in some areas, you don't need it.

Senator MITCHELL. Well, I think that what the testimony demonstrates—and I have no doubt of the accuracy of your observation regarding the dichotomy in the minds of many Americans who generally support measures to clean up air, but oppose those specific measures that impact upon them—is that we have failed to make sufficiently clear to them what is at stake here. I know Senator Symms is as concerned about this issue as anyone, but it is important to understand that this is not something made up by the media. In the very seat you are now sitting in we had the president of the American Pediatric Association who spent a lifetime treating children, who, with other eminently-qualified physicians, provided to this committee profoundly moving and disturbing testimony about the effects of air pollution on the health of Americans, and most notably, on the health of American children.

I don't think there's a father, a mother, a person in this country who, if they could be convinced that having their automobile inspected once a year would spare their child from a life of ill health and adversity, would even think twice about it. The problem, of course, is in making the direct connection. You cannot demonstrate that inspection of this vehicle will preserve the health of that child, although we know statistically that failure to inspect this aggregate number of vehicles will adversely affect that number of children. And I think what we have to try to do is work together. It's, I must say, a discouraging start, given the breadth and depth of your opposition to the legislation, but I take comfort in the fact that we've started off worse than this before.

Mr. THOMAS. We have worked on some tough ones, I'll agree with you. This may be one of our biggest challenges, Senator.

Senator MITCHELL. We've worked them out.

Mr. THOMAS. I really do appreciate the scheduling of this hearing and the opportunity that you've given me to talk about the matter, and it is very consistent with the kind of opportunities you've always given me to work with you and the members of your committee and subcommittee on issues that we're concerned about. You know that there is no question, as far as I and my staff are concerned, about the value of air pollution control as far as public health and welfare and environmental goals are concerned. But it is—the point that you make, about cause/effect relationships—is in fact a fundamental part of what this debate is all about. You cannot make the connection. You cannot make the connection in many of the places between the I&M program and any kind of health effect if you, in fact, put it in places where you can't show any benefit from it. That's one of the fundamental parts of what we're talking about, and that's why I say we stand the possibility of eroding that overall general support for environmental protection goals if we go too far in trying to meet those goals in areas where we can't justify a benefit.

Senator MITCHELL. That is true, but that must be balanced by our concern for the health of Americans and by the fact that the reality that if we must err, we should err on the side of caution and prudence. One of the most alarming things about the advance of what we call progress is how often advanced industrial societies such as ours have been able to fully measure the benefit of something defined as progress very early in its development, but have not fully been able to measure the tremendous disadvantage of that particular event or device or mechanism until long after the damage has been done. And we wrestle with that today, right in this very committee, where we—Senator Simpson, Senator Breaux, I and others—will deal with the problem of the regulation of the nuclear industry. A classic example of how, as a society, we have fully measured the benefits early and are only now coming to realize the disadvantages. So I think the lesson of that is that where the health of Americans is concerned, we want to act prudently and cautiously. And surely, we can't disregard cost; we can't disregard the possibility, as you suggest, of a backlash in public reaction. But we've got a terrific task.

The only thing I ask of you is, one of the reasons why you have the respect of members of this committee is that, unlike some of your predecessors—although you oppose legislation and you do so vigorously and with great effect, as we develop that legislation, we want your expert advice on how best to do it. Even if you are against the bill, we are entitled to get your best advice on how to do it in such a way that it will minimize any adverse effects. And that's really what we want from you.

As I said at the outset, and I repeat in closing, all human efforts are imperfect, and a bill like this dealing with very complex questions is, particularly in its first draft, most imperfect. We recognize there are going to have to be many changes in this bill, and we don't want to do anything that is imprudent or which unfairly or unnecessarily creates burdens on any person in our society.

So striking that proper balance will be very difficult, and we look forward to working with you on that, notwithstanding the many differences we have in approach and philosophy and even on some of the underlying facts.

Mr. THOMAS. We are always prepared to work with you, and certainly in this case.

Senator MITCHELL. Well, thank you very much for coming.

The committee will hold another hearing on the subject of the title of the bill dealing with toxics tomorrow evening in this room at 6 p.m. Until then, the committee stands in recess.

[Whereupon, at 5:40 p.m., the subcommittee recessed, to reconvene at 6 p.m. Thursday, July 23, 1987.]

[Mr. Thomas' written statement follows:]

TESTIMONY OF
LEE M. THOMAS
ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

July 22, 1987

When I testified before this Subcommittee on April 22, I stated my belief that, except for some of the provisions regarding nonattainment, the Clean Air Act as it currently exists is working reasonably well. Our efforts to protect public health from the adverse effects of air pollution have been successful in many areas, and our success is even more striking when evaluated in light of the economic growth this country has enjoyed over the past 15 years.

The air in this country is measurably cleaner than in 1970 when the Act was passed. Total annual emissions of the six most pervasive air pollutants have been reduced, in some cases remarkably. Average ambient concentrations of those pollutants also have declined. The number of times that our national health standards are exceeded has fallen over the last ten years, even in the case of ozone, our most widespread air quality problem. These improvements in air quality have greatly improved the health and welfare of the American people, especially those living in urban areas.

The Clean Air Act has led to the control of most major sources of air pollution, both stationary and mobile. It has driven the development and use of innovative pollution control technologies. It has encouraged and supported the evolution of air quality programs managed by State and local governments. The Clean Air Act has served us well in the past and is capable of protecting our nation's air quality--and our people's health and welfare--into the foreseeable future.

Over the past few months, this Subcommittee has been examining various amendments to the Clean Air Act. Three weeks ago, Subcommittee mark-up was begun on a proposed bill. Since that time, my staff and I have been studying the stated requirements and the implications of that bill. Our analysis, like the bill itself, is still in process. But based on what I have seen so far, I believe that the Clean Air Act should not be amended in many of the ways now being proposed in the Subcommittee.

I support many of your intentions as manifested in the proposed bill. For example, I support the idea of steady reductions in ozone precursor emissions in nonattainment areas. I support the idea of allowing different nonattainment areas to reach attainment on different--and realistic--schedules depending on the severity of their air quality problems. I strongly endorse the effort to ensure that in-use motor vehicles meet their emissions standards. I support the technology demonstration program recommended in the Joint Report of the Special Envoys on Acid Rain. I also support authority strengthening the current criminal provisions of the Act, including authority for felony-level sanctions. And I share your goal of effective control of hazardous air pollutants.

As laudable as these goals may be, they are being proposed in forms, or in conjunction with other provisions, that are sometimes unworkable, redundant or inconsistent, or that impose requirements that are out of proportion to the likely health and environmental benefits. They are being proposed as part of provisions that would impose control requirements that in many areas are beyond those necessary to protect public health. The Clean Air Act could benefit from some modest and carefully targeted changes, but I believe the country would not be well served by the sweeping, costly, and sometimes excessively stringent measures mandated by this bill.

In my testimony today I will discuss the major concerns that I have with each of the different titles of the proposed bill. But before I begin that discussion of specific provisions, I would like to describe in more general terms some of the conceptual difficulties that I have with the bill as a whole.

FLEXIBILITY

The Clean Air Act states as one of its fundamental principles "that the prevention and control of air pollution at its source is the primary responsibility of States and local governments." The Federal government has the responsibility to establish national standards, and to provide leadership, technical and financial assistance, oversight, and, where appropriate, enforcement. For specific kinds of pollutants, or sources of pollutants that pose serious environmental problems nationwide, the Federal government has the responsibility to establish national requirements to control those pollutants and sources.

State and local governments, on the other hand, have the responsibility to fashion control programs that target State and local air quality problems. Their actions can be tailored to the particular economic and social circumstances of the people they serve. This division of responsibility reflects a national commitment to the principle that each level of government should do what it does best, thus maximizing the effectiveness of the law in serving the people.

I believe that the amendments proposed in this bill would cause a dramatic shift in this traditional Federal/State partnership. It would take pollution control decisions and discretion away from the States by federally mandating an array of measures that may not be appropriate or necessary in specific areas.

Some members of Congress have been frustrated by our lack of progress in some areas in meeting air quality goals. I am often frustrated as well. These frustrations have led some people, including some State air quality officials, to argue that a stronger Federal presence is needed.

But our incomplete success is not caused generally by State incompetence or lack of will. It is due to the difficulty and complexity of the problem itself. Ozone nonattainment is a problem caused by emissions from millions of sources, large and small, and in every sector of our nation's economy, and by their interaction with weather conditions that encourage ozone formation. Imposing a more rigid set of Federal requirements would not be a panacea; our frustrations should not drive us into a misguided belief that greater uniformity and less flexibility would solve the problem. On the contrary, because cost and public inconvenience increase dramatically with each marginal emissions reduction, we need greater flexibility to target control efforts where they will do the most good. We need the diverse talents of capable people working at all levels of government, and in the private sector as well, as we seek new and innovative solutions to the complex problems of chronic, long-term nonattainment.

In short, there are substantial economic and political costs entailed in limiting the flexibility of Federal, State, and local governments. To the extent that State and local governments are not allowed to fashion their own solutions to their own air quality problems, we dilute the overall benefits of our national investment in pollution control and impose unnecessary burdens. To the extent that we mandate Federal controls everywhere without regard to their suitability to local circumstances, we risk losing the public support for air quality programs that is absolutely essential to the success of those programs.

COST

I am also concerned that the substantial costs this bill would impose on the Federal government, State governments, sources of air emissions, and consumers alike are out of proportion to the benefits to be achieved. The current Clean Air Act requires me to set ambient air quality standards to protect human health. However, in many cases these amendments would mandate specific kinds of control programs and control technologies that go well beyond what is needed to attain those standards. Other provisions of this bill would duplicate to a large extent authorities we already have under other laws, thus imposing unnecessary administrative costs. Still other provisions would necessitate substantial new administrative structures at both the Federal and State levels. I think there are much less intrusive and expensive ways of reaching our environmental goals.

SCHEDULES

My third major concern has to do with our ability to comply with the different kinds of schedules contained in the bill. Several provisions call for the development of plans, the promulgation of standards, or the achievement of specific levels of control that appear inconsistent, impractical, and unreasonable within the timeframes allowed. The likelihood that the Federal and State governments could not implement some of the proposed provisions, no matter how much they were committed to them, argues forcefully that those provisions be reconsidered.

SCIENCE

Finally, and perhaps most seriously, in several places--most notably in the Title IV provisions regarding new national ambient standards--these amendments could undermine the traditional role that science has played in the regulatory process. These provisions presume that we now know everything that we need to know about the adverse effects of certain air pollutants to set specific standards and prescribe specific controls. They would legislate those standards and controls, whether they are scientifically supportable or not.

In my tenure as Administrator of EPA, I have had to make a number of decisions that had far-reaching environmental and economic repercussions. In most cases I have had to weigh a body of scientific evidence that was incomplete or uncertain at best, and contradictory at worst. But that is the nature of environmental regulation. Science is the basis and the justification both for what we do and do not do to protect the environment, and we have established procedures for peer review to assure that our scientific judgments are the best that can be made on the basis of the available evidence. To prejudge the science--to make what is in effect a scientific judgment without having adequately considered the scientific evidence supporting that judgment--is likely to lead to public policy decisions that are difficult to implement and to defend.

Now I will turn to specific provisions of the bill. My remarks today are not meant to be a comprehensive review and analysis of each title. Rather, I want to highlight the most serious concerns that I have with each section in order to establish a framework for any future discussions with me or my staff.

TITLE I

Most people would agree that the nonattainment provisions are among the most unsatisfactory aspects of the existing Clean Air Act. From EPA's perspective, we have three major concerns with those provisions. First, they do not give us very much guidance on how to respond to areas that will not attain the ozone and carbon monoxide standards after the planning date for attainment passes at the end of this year. Second, they do not clearly delineate what kinds of sanctions are to be used under what circumstances, nor do they define a sanctions program that can be used as an effective incentive for reaching attainment. Third, they create an administrative system that is not particularly well-suited, and in fact may be counterproductive, to resolving regional nonattainment problems.

Title I of the proposed Clean Air Act amendments attempts to address these major concerns. EPA has welcomed Congressional review of these provisions, because we believe that Congressional action is needed if we are to craft a legally-sound national response to the problem of chronic, long-term nonattainment of the health standards, and the ozone standard in particular. However, for a number of different reasons, I believe that the revisions as currently proposed go well beyond what is needed, and will create many more serious problems.

Nonattainment Area Controls

Our last ten years of experience in trying to attain the ozone standard nationwide has taught us that setting uniform deadlines five years in the future for all ozone nonattainment areas, regardless of their individual circumstances, was not a very realistic or effective mechanism for reaching attainment. Short-term deadlines, while appropriate for some areas, are impossible to meet in others no matter what actions are taken. I appreciate that this bill would give different areas different deadlines for achieving the ozone and CO standards, depending on the severity of their air quality problems. However, this bill would not allow the States sufficient flexibility in meeting their different deadlines. It would require all States to incorporate a regimen of control measures into their State Implementation Plans (SIPs), regardless of their appropriateness, necessity, or feasibility at the local level. Thus, the bill could result in substantial overcontrol in many areas with only marginal air quality problems.

For example, EPA estimates that about 25 ozone nonattainment areas nationwide need less than a 25 percent reduction in their VOC inventories in order to attain the ozone health standard. We expect that many of these areas will attain the standard in the near term, probably over the next 5 years, simply due to the effects of our current VOC control program, including the Federal

Motor Vehicle Control Program (FMVCP). Yet they still will be required to adopt several mandatory measures, including the adoption of Reasonably Available Control Technology (RACT) on all existing major sources of VOCs and NO_x a ban on netting out of New Source Review requirements, and at least one of three very tough mobile source control measures.

In those areas, the required measures would lead to emissions reductions that EPA could not defend as necessary to attain the standard. Even areas that need substantial emissions reductions beyond those to be achieved by existing programs may be required to adopt measures in excess of those needed to attain the standard.

The costs of potential overcontrol would be considerable. Over 5 years, those areas would probably have to spend a total of about $1-3 billion to reduce air emissions, over and above what apparently is needed for attainment.

There are other nonattainment provisions that would be very difficult to implement within the mandated timeframes, or that would impose substantial costs--on sources, the Federal government, and State governments--without a clear link to the environmental or health benefits to be gained. For instance, the bill requires EPA and the States to adopt and enforce an emissions fee of at least $100 for each ton of VOCs, NO_x, or CO emitted by any stationary source in an area subject to an attainment date after December 31, 1992. I have a difficult time imagining how this provision as presently drafted could be efficiently administered and enforced. I believe emissions fees could be a useful regulatory tool in some circumstances, and there may be appropriate uses for such fees in ozone nonattainment areas. But I do not believe the emissions fee proposal in this bill has been appropriately designed or targeted.

Sanctions

Many public officials throughout this country have expressed concern about the effect of nonattainment sanctions that could stop major new industrial projects or highway or sewer construction projects. Some officials are justifiably upset that they should face sanctions even though they have developed and submitted clean air implementation plans which, although not demonstrating attainment, included very stringent control measures and very substantial emissions reductions at great cost to their citizenry and businesses.

I have tried to assure these States and localities that, although I believe the current law requires that I disapprove their plans and therefore automatically impose the major source permit ban, I intend to use my discretion so as not to unfairly punish those who have made and continue to make good faith efforts to develop and implement fully approvable implementation plans.

I have also tried to reassure those States that did submit plans demonstrating attainment, fully approved by EPA, and that have fully implemented those plans, that they do not automatically face sanctions at the end of 1987. Although others, including the General Accounting Office, may differ, in our view sanctions are provided for a failure to plan or implement a plan--not soley for failure to attain. This legal interpretation was strongly supported, indeed demanded, by most of the leadership of both the House and the Senate in 1983 when it was adopted by Administrator Ruckelshaus, following the failure of some areas to attain the 1982 deadline despite approved SIPs.

For those areas not in attainment by the end of 1987, I intend to issue calls for States to revise their SIPs. Only if States fail to adequately respond to this SIP call will they be subject to sanctions. We are now working to develop the policy governing SIP calls after 1987, a policy that we hope to propose for public comment and review early this fall.

Amendments to the Clean Air Act would be very useful to avoid the present unfairness of a construction ban for areas that, despite strong and effective efforts, simply are unable to demonstrate attainment by the end of 1987 or a fixed short-term date thereafter. The current Subcommittee bill does not provide carefully targeted relief. Instead, it offers the prospect of short-term relief from a limit on permitting major sources in exchange for much more severe economic and social effects and growth limits over the long term.

Although not formally defined as sanctions, the bill's ban on netting out of New Source Review requirements, its ban on emissions trading and its requirement that emissions from new sources be offset at a 2:1 ratio in certain areas amount to growth sanctions that would have to be imposed regardless of the circumstances in each area, and regardless of their usefulness to EPA as discretionary tools. Then the bill proposes that a list of sanctions--a more stringent construction ban, restrictions on sewage treatment construction grants, and cuts in highway construction grants--be imposed on many or all nonattainment areas based on their failure to meet the applicable deadline, no matter what the reason, or their failure to meet the applicable percentage reduction requirements, no matter what the reason. In some areas, failures to plan or implement would also lead automatically to a ban on new sewer hook-ups.

Conceptually, I believe that sanctions could be valuable regulatory tools when applied to spur reasonable behavior. They are the sticks that prove we are serious about attaining our air quality goals. But sanctions that are designed to fall on a nonattainment area all at once for failure to hit a statutory target, regardless of circumstances, exacerbates the current problem with the law rather than solves it. In particular, the notion of sanctioning areas despite their full implementation of an approval plan is not appropriate.

If sanctions are to work effectively as a kind of negative incentive, then EPA has to have the flexibility to use them in a measured, step-by-step way. The provisions banning netting and requiring 2:1 offsets, the emissions fee provision, and the prohibition on new sewer hook-ups are potentially very potent sanctions; they should not be mandatory and should only be used after the other sanctions have proven ineffective.

Beyond that, EPA should be given discretionary authority to promulgate individual control measures suitable to an area for the interim period when the State is getting its planning on track. The proposed amendment does not do this; instead, it arguably maintains a duty for EPA to impose a comprehensive Federal plan when a State defaults, even where EPA could do no better. I believe that such a duty should be held in reserve until it is apparent that actions taken by the State government, sanctions designed to encourage States to take action, and control measures that EPA has already promulgated, will not be enough to induce the State to create its own plan for attainment.

In addition, it is not clear what course the bill would require EPA to take if an area were to attain the standard without adopting all of the prescribed measures, a scenario that would be possible where the bill requires overcontrol. In other words, I do not believe that creating a package of sanctions that is to be applied wholesale without regard to specific circumstances is a workable solution to our current sanctions problem. EPA needs the discretion to apply different sanctions and control measures at different times in different places, depending on the nature of the nonattainment problem and the State efforts to solve it. We need a big stick, and several smaller sticks as well. Most of all, we need the latitude to use them sequentially as a measured response for continued failures or inability to plan or implement a plan.

Regional Commissions

In many parts of the country, especially along the northeastern corridor, ozone nonattainment clearly has taken on regional dimensions. Ozone concentrations in any particular area are likely to be linked to precursor pollutants emitted by sources spread over an area of several thousand square miles. Limiting such concentrations requires controlling those areawide sources, even though they may be located in a number of different political jurisdictions. Clearly, solving regional ozone problems will demand not only highly sophisticated technical analyses, but the careful integration and balancing of political interests that cross State and local lines.

The Senate bill now under discussion proposes the creation of regional commissions comprised of State representatives, EPA regions, and myself. These commissions would be responsible for developing attainment strategies for ozone transport regions and for defining emissions source categories subject to control throughout the region.

I have serious reservations about the value and effectiveness of a new layer of bureaucracy created explicitly to develop plans and control sources across State lines. In my experience, multistate organizations work reasonably well for long-range planning, but have great difficulty with other functions. For example, it has been very difficult to convince the States to form compacts to manage the disposal of low-level radioactive wastes.

The success of any institution depends on commonality of interest among its members. While ozone is of wide concern, it is not clear that the commissions would provide enough common ground on which to negotiate. Downwind rural areas have more to gain from the commissions; upwind urban areas have more to lose. It is very difficult to see mutually agreeable solutions to ozone problems being developed by commissions composed of such opposing interests.

Consider the commission proposed for the Northeast. Its members from 7 small States, with 15 members of Congress, would be able to outvote the 6 large States, whose combined membership in the House of Representatives is about 100. Yet the Northeast commission would allow a coalition of States to devise ozone controls to be borne by only one or two States.

Compounding these governance problems is scientific uncertainty about ozone and the atmospheric phenomena that form and spread it. Such uncertainty makes it even more unlikely that any commission would be able to reach agreements on what to do about ozone nonattainment within its borders.

Consequently, I doubt that the proposed commissions would be able to act by consensus. They would be prone to strong disagreements, which in turn would be fertile ground for political pressure and litigation. Adding more political contentiousness will not solve regional ozone problems, or even add to our understanding of what must be done. The Act already provides more direct authority in section 110(a)(2)(E) to require the control of pollution in one State that prevents attainment in another State. I urge you to drop the provisions regarding regional commissions.

TITLE II

Title II of the proposed Senate bill is intended to control acid deposition. I have testified before Congress several times on the subject of acid rain controls, so I will not repeat my position in detail. I will simply restate my belief that acid rain is a problem in this country, and that once the fundamental scientific uncertainties have been reduced, this Administration will craft and support a set of measures to solve the problem. However, a decision on the need for additional controls is not appropriate at this time.

Although my position on the need for acid rain controls has not changed since I last testified on the subject, I would like to comment on the particular provisions now under consideration. This bill proposes an especially ambitious control program, i.e., a sulfur dioxide reduction of 12 million tons per year and a nitrogen oxides reduction of 4 million tons per year, both to be achieved by January 1, 1996. When the provisions for offsetting emissions growth are factored in, the bill effectively calls for an annual sulfur dioxide emissions reduction of 14 million tons per year. In other words, this bill not only presupposes that today's scientific knowledge justifies an acid rain control program, but that it justifies a very large control program to be implemented over a very short time.

We have been analyzing different proposed approaches to acid rain controls for about ten years now, and we have always had to face two important truths. First, the more tons of SO_2 you want to control, the more you have to pay per ton removed. Second, the faster you want to control those tons of SO_2, the more you have to pay per ton removed.

Over the past few years, we have analyzed the costs of some fifteen different approaches to controlling acidic emissions. Generally speaking, the cost of controlling 5 million tons of SO_2 is about $1 billion per year. The cost of controlling 10 million tons of SO_2 is about $3 billion per year. The cost of controlling 14 million tons of SO_2 is two to three times as much. The scientific justification for an expense of that magnitude should be much more compelling than it now is. Consequently, I think this proposed program is premature at best, and I cannot support it.

Besides its prejudgment of the science and its extraordinarily high cost and fast implementation schedule, I have another problem with Title II: it is internally inconsistent. Part F of Title II is intended to correspond to one of the recommendations of the Special Envoys on Acid Rain i.e., a five-year, $5 billion program, jointly funded by the Federal government and private industry, to demonstrate innovative clean coal technologies.

The Administration has consistently supported the recommendations of the Special Envoys. In fact, the President has requested Congress to appropriate the full $2.5 billion in Federal funds for the program. I believe that the technology demonstration program is a particularly effective way of expanding the control options available to operators of existing facilities, lowering control costs, lessening the impacts on high-sulfur coal producing areas, and beginning to reduce the flow of acidic air pollutants over the border into Canada. However, that recommendation was not meant to be implemented in conjunction with a major acid rain control program. It was meant to be an incentive for the commercial demonstration of innovative control technologies. If an acid rain control bill of the kind contemplated here in fact were enacted into law, then there would be no need for an incentive program. In fact, given a law requiring control, the Federal government would be ill-advised to subsidize in this way a handful of the many sources that would be required to control emissions.

Furthermore, this control program and a concurrent technology demonstration program would be inherently incompatible: the control decisions would have to be made before the results of the technology demonstrations were available. Under the most optimistic assumptions, the first technology demonstrations proposed in this bill would not be operational until about four years after enactment. The initial results of those first demonstrations would not be available for review and evaluation for about five years. Yet, under the terms of the bill, States would have to adopt source-specific regulations within two years, and sources would have to certify the compliance measures they intended to use within three years.

In other words, sources would have to decide upon and certify their compliance measures two to three years before the results of technology demonstrations were available. There would be little opportunity to use widely the innovative control technologies that the nation had just spent five billion dollars to demonstrate.

Finally, section 203 of Title II, which would repeal section 119 of the Clean Air Act authorizing nonferrous smelter orders (NSOs), would also prohibit judicial compliance schedules past January 1, 1988. In so doing, section 203 would disrupt the substantial progress that has resulted from EPA's smelter enforcement efforts, nullifying the compliance measures and schedules contained in several active consent decrees. These decrees, consistent with EPA's post-1982 enforcement policy, provide for compliance as expeditiously as practicable, although in some instances past January 1, 1988. Section 203 would require immediate shutdowns by the courts of smelters violating SIP requirements. Such a restriction on the court's remedial authority would encourage non-complying companies to attempt to buy time through prolonged litigation and to argue for stricter proofs.

TITLE III AND OTHER MOBILE SOURCE PROVISIONS

There are a number of mobile source provisions within Title III that EPA wholeheartedly supports. We especially appreciate any further tools that help us ensure that the controls now placed on new cars and trucks continue to achieve the emissions reductions for which they were designed. For example, we support the expanded definitions under the tampering provisions, and the prohibition on the manufacture or sale of devices that would bypass or render inoperative emissions control systems. New cars and trucks are now very well controlled compared to 1970 levels, and EPA wants to make sure that they stay well controlled through their operating lifetimes.

For example, inspection/maintenance (I/M) programs are currently operating in about 60 nonattainment areas around the country, and they have been shown to be a very effective means of controlling VOC and CO emissions from automobiles. Presently, EPA is developing strategies that can be used by State and local governments to improve and enhance I/M effectiveness. So, in one respect, we agree with the bill's concept that I/M is a valuable tool to reduce in-use emissions.

However, we cannot agree that requiring almost all ozone and CO nonattainment areas to implement strict I/M programs is reasonable. For example, I have already mentioned that some areas will come into attainment in the next several years without the imposition of any new control measures. Much of the emissions reduction will occur as new, less-polluting cars and trucks replace older vehicles. It does not make sense to force those areas to undergo the lengthy and difficult process of instituting an I/M program when they will probably reach attainment before the program is in place, or shortly thereafter.

Similarly, we believe that other mobile source provisions have merit when considered for severe nonattainment areas, but not as mandates for all nonattainment areas. One example is the use of oxygenated fuels. We believe that, in certain circumstances, these fuel blends could provide significant reductions in CO emissions. However, we do not believe it would be appropriate to require them in all CO nonattainment areas. Nor would it be appropriate to require all fleet vehicles in all ozone nonattainment areas to use alternative fuels or power sources. Rather, we believe that States should be given some degree of flexibility to select those mobile source control measures that provide the most effective control under their specific circumstances.

I cannot support some other major mobile source provisions in the bill. Because we have had great success controlling mobile source tailpipe emissions in the past, some people seem to believe that imposing more stringent controls will be equally successful in the future. That is not likely to be the case. Each new increment of control costs more, and achieves less environmental benefit. Furthermore, as mobile source emissions standards become more stringent, the control technologies needed to achieve them become less feasible, and sometimes they cause unintended negative side effects.

For example, the current hydrocarbon standard for automobiles is 0.41 grams per mile. This bill would reduce that standard to 0.25 grams per mile. Although that standard may be technically feasible, it would impose higher costs for new cars, with little additional environmental benefit. EPA estimates that if the entire U.S. automobile fleet were to achieve the 0.25 standard at current rates of in-use deterioration, nationwide annual VOC emissions would be reduced by only 0.9 percent. This modest gain would be achieved at a cost of about $470 million per year. However, if the entire fleet met the current 0.41 standard in-use, total national VOC emissions would be reduced by 3.7 percent. These figures demonstrate why EPA is more interested in improving in-use performance than tightening mobile source standards for new vehicles.

Title III would also reduce the heavy-duty truck NO_x standard. The standard now scheduled to go into effect in the 1991 model year is 5.0 grams per brake horsepower-hour(bhp-hr). This bill would provide that the 1991 standard be 4.0 grams per bhp-hr, with a further tightening to 1.7 gram per bhp-hr by 1995.

Although EPA believes that the 4.0 gram NO_x standard may be technically achievable, it could put the existing particulate standard for 1991 at risk. Controls on NO_x and particulates work in opposition, so a tradeoff is involved if either pollutant is to be controlled more stringently. A 1995 1.7 gram NO_x standard, on the other hand, is simply not feasible using any technology that we can envision, especially for diesel engines.

This bill also would require EPA to set motorcycle exhaust and evaporative standards at levels equivalent to those of passenger cars. Under the current law, EPA has the authority to regulate motorcycle emissions; in fact, standards have been in place for motorcycles since 1978. We have not tightened those standards since the 1980 model year because motorcycles contribute only about 0.5 percent of nationwide VOC and CO emissions. Therefore, we question whether this proposed provision is needed. The complex issues related to the cost and feasibility of adding more stringent controls on motorcycles should be addressed through EPA's existing regulatory authorities and process.

I would also like to comment on the onboard control provisions of Title III, especially as they relate to the Stage II provisions of Title I. Title I would mandate that the SIPs in most ozone nonattainment areas require Stage II technology on gasoline pumps in order to control basically the same refueling vapors captured by the onboard controls required on new cars by Title III. Over the long term this technological redundancy would lead to very high marginal costs and very little marginal control. Furthermore, because even in the short term the effectiveness of Stage II controls would vary widely from city to city, they should not be mandated everywhere. The short-term effectiveness of Stage II controls would be further undercut if some States did not enforce them on the schedule prescribed in the bill.

Finally, Title III contains a number of specific requirements for motor vehicle fuels, two of which are controls on gasoline volatility and controls on the sulfur content of diesel fuel. While these requirements may appear to be straightforward, in fact they involve complicated technical matters that, in my opinion, would be better addressed through EPA's current rulemaking process than through new legislation that mandates specific numerical standards. Such issues as lead time, costs, impacts on vehicle fuel economy, driveability, and durability often need to be explored and debated in technical studies, public hearings, and other forums that are part of the normal rulemaking process. The public discussion essential to the development of reasonable standards would be foregone if the standards were mandated by law.

TITLE IV

Title IV of this proposed bill requires the Administrator of EPA to revise the scientific criteria for, and then to promulgate, several new national ambient air quality standards. Those standards are: an 8-hour standard for ozone; a one-hour standard for nitrogen dioxide; a high-altitude standard for carbon monoxide; a one-hour standard for sulfur dioxide; a secondary standard for fine particles; and a primary standard for acid aerosols.

The promulgation of national health and welfare standards under the Clean Air Act is one of my most important responsibilities, and I take that responsibility very seriously. During my tenure I have reviewed several of the existing national standards; some I have decided to retain, and one I decided to change. But in all cases my decisions were predicated on a careful weighing of all the scientific evidence pertinent to the question. Consequently, after the decisions were made, I could defend them and implement them with the knowledge that the science as a whole, despite uncertainties and incomplete data, justified my action.

This bill seems to abandon our traditional reliance on sound science. Within one year of enactment I am to "issue such revisions to criteria as may be necessary to promulgate ambient air quality standards...". What am I to do if the scientific data does not support such revisions? How can I promulgate national standards if, in the opinion of the scientists with whom I am required by law to consult, the available scientific data does not support such standards?

I realize that Congress has heard recent testimony about the effects of current levels of air pollution on mortality in the United States. Some recent studies have suggested a link between acid aerosols--together with other pollutants--and lung disease. EPA is well aware of emerging health information like that related to acid aerosols and associated regional pollutants. But our concerns about the data are tempered by the acknowledged limitations of the studies and the conclusions to which they lead. Furthermore, our current system provides for the ongoing review of health effects data, and--if necessary--the revision of national health standards. The results of recent health studies should not cause us to short-circuit our existing regulatory system that in the past has demonstrated its responsiveness to new health effects data.

I certainly appreciate Congressional concern over the health effects of the criteria air pollutants. I, too, want to ensure that we set standards adequate to protect health and welfare, and that we measure pollutants over the proper time frame. Over the last three years I have looked hard at possible revisions to the CO and NO_2 standards. I did not find adequate scientific justification for revising them, and I don't think that the state of the science has changed sufficiently to justify revising them now.

EPA has just revised and strengthened the health standard for particulate matter. I am now completing another lengthy review of the scientific data related to SO_2, including short-term effects. I expect to propose any needed changes to the SO_2 standard within the next few months. My staff has just completed an initial review of the health information related to acid aerosols, a study recommended by EPA's Science Advisory Board.

All in all, the current system is working. We are continuing to focus an enormous amount of staff time and energy on the national air quality standards protecting health and welfare. We fully intend to act when the science justifies action, and I hope Congress will not force us to do otherwise.

I have other, more practical concerns about Title IV. Even if the scientific data were available and supportive of these proposed actions, I doubt that EPA would be able to complete the revisions to the criteria documents, the review by the Clean Air Scientific Advisory Committee, the proposal of the standards, the public review, and the promulgation of the standards all within the time frames established by the bill. In order to meet the deadlines, particularly the one-year deadline for revising the scientific criteria, EPA would have to short-circuit much of the scientific assessment and public review stipulated in the Clean Air Act. Even if that work could be completed on time, the States would face an enormous administrative burden rewriting their SIPs to incorporate all the new controls required by the new standards.

The potential State burden is especially serious when viewed in light of the ambitious nonattainment provisions proposed in Title I of this bill. At the same time that Title I proposes that States rewrite their SIPs and enforce a new regimen of controls in order to reach attainment of the ozone and carbon carbon monoxide standards within--for most areas--five to ten years, Title IV proposes that the ozone and carbon monoxide standards be revised, the former within four years and the latter within two years. Those new standards would then have to be incorporated into SIPs within two years. I think that State governments would find the simultaneous implementation of these two titles to be chaotic, confusing, and disruptive.

Furthermore, ongoing enforcement/compliance efforts could be seriously disrupted by the flood of new and revised SIPs that would result from the implementation of these provisions together with the nonattainment provisions of Title I. Some courts have held that EPA must act on proposed revisions to SIPs within four months. And two Federal Circuit Courts have held that EPA is limited in pursuing enforcement in some respects when a SIP revision has been pending for more than four months.

The provisions of Titles I and IV would entail sweeping SIP revisions nationwide. Yet the proposed bill does not address EPA's need for more reasonable deadlines to act on SIP revisions. Nor does it otherwise ensure that our ongoing enforcement efforts would not be disrupted by any delays we might face in processing revised SIPs. Thus, this bill not only proposes an enormous new SIP workload at the Federal and State levels, but it could also effectively paralyze our efforts to enforce existing SIPs.

Finally, I am concerned that the control programs that would be required to meet three of the proposed new standards, i.e., for SO_2, fine particulates, and acid aerosols, would overlap with each other, and with the acid rain control provisions in this bill. All would require control of the same pollutants from the same sources. All would lead to reductions in regional emissions of sulfur oxides. Yet each would require different kinds of administrative actions at the Federal and State levels, and because the mandated deadlines are different, it is likely that the control target for the different affected sources would shift over time.

TITLE V

EPA has spent a lot of time and energy over the past several years improving our air toxics control program under section 112 of the Clean Air Act. Up to this point, we have listed eight pollutants under section 112, and we have established national emissions standards for seven of them. We have published our intent to list ten more pollutants, and national emissions standards for those ten will begin to be proposed in 1988. At the same time, we are working with State governments to develop control programs for those hazardous air pollutants that are not a national problem, but that may pose a health threat in specific areas.

EPA's air toxics program is not limited to our efforts under section 112 of the Clean Air Act. We are managing a broad-based program using a number of provisions of the Clean Air Act, and other environmental legislation as well. For example, EPA has recently proposed to control woodstove emissions and has announced its intent to control municipal waste combustor emissions under section 111 of the Clean Air Act. We are considering standards to control chromium emissions from air-conditioning cooling towers under section 6 of the Toxic Substances Control Act (TSCA). We are acting to control toxic air emissions from hazardous waste treatment, storage, and disposal facilities under the Resource Conservation and Recovery Act (RCRA). Existing mobile source controls are reducing several different toxic air pollutants; in addition, under Title II of the current Clean Air Act we have proposed to ban lead entirely from gasoline, and to further control particles from diesel engines. Any VOC or particulate controls now or soon to be in place under existing authorities have the added benefit of reducing emissions of toxic air pollutants, as would any further VOC controls mandated in the proposed Clean Air Act amendments.

Taken together, these activities demonstrate that EPA has in place a multi-dimensional, targeted air toxics control program. I am sure there are ways that EPA's program could be improved, but I cannot support the sweeping, costly, and inflexible amendments proposed in this bill.

Hazardous Air Pollutants

The hazardous air pollutant (HAP) provisions of this bill would establish a list of chemicals and require EPA to set emissions standards for all significant sources of those chemicals within three years. Nineteen specific chemicals would be listed automatically, and EPA would be required to consider for listing literally hundreds more. Any pollutant posing more than a negligible risk would be required to be listed as a HAP.

Sources covered by the HAP provisions are those that emit greater than *de minimis* amounts of the relevant HAPs. EPA would be required to set standards at a level that would protect people with an ample margin of safety from any known or anticipated adverse effect on health, unless more stringent standards were needed to protect the environment, while prohibiting consideration of cost, economic, energy or other factors, or technological feasibility in setting that standard.

For existing sources of non-threshold pollutants, BACT--which is defined in this bill to be more stringent than is now the case--may be applied if the facility owners would experience "extraordinary economic hardship" to comply with the ample-margin-of-safety level, *and* if the maximum exposed persons would not be exposed to greater than "negligible" risks. This BACT "exemption" could not last more than 10 years, at which time the source would have to meet the health-based level.

The bill does not specify what constitutes a de minimis emissions level, nor does it indicate what control level is "amply" protective nor what is considered a "negligible" risk. As you well know, scientific theory holds that there is a finite risk associated with exposure to any level of a carcinogen. It has been suggested that the HAP provisions may mean that any source of any HAP carcinogen must achieve zero emissions. It is obvious that the thousands of sources potentially covered under the HAP provisions--cooling towers, organic chemical manufacturers, dry cleaners, coke ovens, sterilizers, sewage sludge incinerators, municipal waste incinerators, oil- and coal-fired boilers, and many others--cannot reduce their emissions to zero unless they shut down.

Even if one assumes that the this bill intends EPA to apply a de minimis individual risk test of 10^{-4} to 10^{-6} in lieu of requiring zero risk, these requirements would have serious implications for many kinds of sources. For example, EPA has proposed section 112 standards for the 43 coke ovens in the United States. We estimate that those coke ovens, even after control, may pose a maximum individual risk greater than 10^{-4}. Assuming a de minimis individual risk test of 10^{-4} to 10^{-6}, coke ovens would have to reduce their already controlled emissions by an additional amount of more than 99 percent. I do not believe the technology exists for those kinds of reductions. In other words, even after significant control efforts and expenditures, coke ovens still could not meet the control requirements of this bill.

Similarly, EPA's preliminary analysis of perchloroethylene emissions from dry cleaners suggests that maximum individual risks at some dry cleaners would exceed 10^{-6} even after installing currently available controls. The same is true for commercial sterilizers using ethylene oxide. The control technologies being considered by EPA under the National Emission Standards for Hazardous Air Pollutants (NESHAPS) program would reduce ethylene oxide emissions by about 98 percent, but some residual risks above 10^{-4} would remain.

I could provide a number of other examples, but I think the point is clear. Depending on what Congress considers "amply" protective, many sources simply could not meet the emissions standards required by this portion of the bill. Those that could not qualify for the up-to-10-year exemption would be out of compliance immediately. The bill is silent on the question of what remedies would be imposed on sources that failed to meet the standard. I do not know if the Subcommittee is contemplating shutdown orders, or penalty orders pursuant to existing authorities, but I do know that if this bill were enacted, literally thousands of relatively small sources would be subject to such orders.

The HAP provisions list only 19 specific chemicals for control, but they also require the EPA Administrator to assess the health and environmental effects of various air pollutants and classes of air pollutants to determine if they also should be listed. The initial lists that the EPA Admininistrator would have to consider for assessments, the lists under sections 302 and 313 of SARA, would contain literally hundreds of pollutants. Depending on how many assessments EPA chose, or was forced, to make, the resource implications could be substantial.

Furthermore, if an assessment were to conclude that there is not enough information to determine whether the chemical is hazardous, the EPA Administrator would have to initiate a research program to collect the necessary information within three years. Since carcinogenicity testing takes at least 5 years, such a schedule requirement is unrealistic and infeasible.

The possibility that EPA might have to undertake dozens of such research assessments under Title V poses a resource question that seems to have been anticipated. The bill allows the EPA Administrator to require the companies that emit the pollutants in question to conduct and pay for the necessary research. Those costs could be very high. Furthermore, it would be extraordinarily difficult for EPA to compile a complete list of sources and determine how much each of them should pay. The language of the bill is very vague on this point, and I think the concept behind it is flawed. Nor does the bill take into account EPA's authority to require chemical testing under TSCA and the Federal Insecticide, Fungicide,and Rodenticide Act (FIFRA), or otherwise acquire the necessary information.

Toxic Air Pollutants

Title V also includes provisions for toxic air pollutant (TAP) control. They require EPA to control the emissions of hundreds of specific chemicals from thousands of specific sources on a specified schedule. Once again, by mandating the kinds and timing of the actions that EPA must take, the bill limits EPA's ability to target its efforts and resources to those pollutants and those sources that pose significant risk. By restricting our ability to make risk-based decisions, the TAP provisions could impose very high costs for relatively little risk reduction.

For example, the TAP provisions require that area sources of the specified pollutants must be controlled so that, after 10 years, total national emissions of each pollutant from area sources are reduced by 55 percent. Area sources are defined as basically all TAP sources that are not major sources, i.e., dry cleaners, woodstoves, small combustion units, and cars and trucks.

For some of the pollutants in question, I am not sure that a 55 percent reduction from small, existing sources over 10 years is technically achievable. Furthermore, I am not sure that hitting a nationwide 55 percent reduction target would be an especially effective way of protecting public health at the local level. Also, some controls would reduce pollutant levels that are already below the thresholds where we start to worry about health effects.

Perhaps the most serious concern I have with both the HAP and TAP provisions is related to the overall question of risk assessment and risk management. The Federal government is given almost no latitude for distinguishing between sources and pollutants on a risk basis, which, in my view, is the soundest basis for a public policy regarding toxic air pollutants. Neither the Federal government nor the State governments are allowed to use judgment on the levels of control to be applied to different sources of different pollutants. This inflexibility would pose a substantial cost, and potentially could result in widespread source shutdowns.

This bill would provide that States may take responsibility for any or all of Title V by delegation. Since it is unlikely that many States would request delegation of the entire responsibility for Title V, the bill probably would force the Federal government to implement a massive set of regulations. I am convinced that the air toxics problem in the United States must be addressed by a more workable combination of Federal and State responsibilities. The problem is simply too diverse. The optimum division of responsibilities will not be easy to define, but it would certainly be much different than defined in this proposed bill.

Extremely Hazardous Air Pollutants

Preventing releases of extremely hazardous air pollutants and minimizing the consequences of accidental releases are very important environmental objectives. However, the bill now before this Subcommittee, as written, would create a comprehensive, costly program that in many ways is redundant of work already underway at EPA.

EPA is committed to gathering the essential information on causes of accidents and prevention technologies and practices that could be used to develop a national prevention program strategy. Much of this program was initiated as part of EPA's Air Toxics Strategy and Chemical Emergency Preparedness Program in 1985. Much of it is now embodied in Title III of SARA. We have always envisioned that the preparedness and right-to-know programs would assure that sufficient information is made available to appropriate officials at all levels of government to aid in their decisions. This information will allow them to determine the actions that have to be taken by industry to prevent accidents, as well as the actions that must be taken by the community to protect citizens against the consequences of the accident if it occurs.

For example, EPA recently initiated the Accidental Release Information Program (ARIP). ARIP is designed to focus corporate attention on large, frequent, or death- and injury-causing releases of hazardous substances. When such releases occur, EPA requires corporate management to explain the causes of the accident, the prevention technologies and practices in use at the time of the accident, and initiatives taken to ensure that it will not occur again. This information will help us to determine where guidelines and prevention requirements are needed.

ARIP is only a national pilot program at present, but we are already seeing some results. Every facility that has received an ARIP letter has taken some action to prevent future releases. These actions include audits, revision of operating procedures, and initiation of research efforts.

In addition, section 305 of SARA requires a comprehensive review of emergency systems for detecting, monitoring, and preventing releases of extremely hazardous substances and alerting the public. This study will provide us with a better understanding of what is in place today--in terms of technology, hazard assessments, and prevention practices--and where improvements need to be made. A report is due to Congress in April 1988. As part of that report, we will make recommendations for improvement in technologies and prevention practices.

In the meantime, we are working closely with such professional organizations as the Center for Chemical Process Safety of the American Institute of Chemical Engineers as they develop and conduct programs of specific guidelines and research. One example is the development of Guidelines for Chemical Process Quantitative Risk Assessment Procedures due in December of 1987.

The information gained from ARIP, the Section 305 Study, and our work with professional organizations, combined with renewed energy at the State and local level as a result of SARA Title III information, will help us determine together the course of our future action, whether it be the development of guidelines for specific processes or certain types of hazard assessments, or the development of regulations aimed at problem facilities. We believe that we should not initiate a comprehensive program, like the one proposed in this bill, until such information which is now being developed as a result of Congressional action and Agency initiatives is available.

In enacting Title III of SARA, Congress established a structure and process for ensuring that industry shares information on extremely hazardous substances and other hazardous chemicals with States and local communities. That information, in turn, is to be used for emergency planning, as well as for minimizing the potential for accidents.

Title III of SARA recognizes that the local level is the appropriate place for addressing such specific problems. Under the provisions of Title III, the local emergency planning committee has access to any information necessary for developing and implementing the emergency plan. On the other hand, the responsibility of the Federal government is to provide technical assistance and research to assist those governments. In addition, the Federal government should focus its energy on those issues of national significance.

Under the proposed Senate bill, the extremely hazardous air pollutant provisions would cover any facility that produces, processes, handles, or stores extremely hazardous substances. The presence of such substances would cause the owner or operator to prepare a detailed hazard assessment that may or may not be wanted or used by the local community. In fact, other less costly and less complex methods may be more acceptable. Since no thresholds are established in this bill, virtually any facility that uses the chemical in any way would be subjected to the requirement. This includes a considerable number of small businesses. The total national cost of this provision could be as high as $21 billion for facilities using only a select group of 20 chemicals.

In addition to cost, this proposed bill creates redundant reporting requirements. Mechanisms are already in place to ensure that serious releases are reported by industry not only to the Federal government, but also to States and local communities. Under existing law, a typical facility is already required to:

- o Notify the State Emergency Response Commission that it is subject to the planning provisions of SARA Title III.
- o Provide emergency planning information, as well as Material Safety Data Sheets and chemical quantity and location information, to the State Emergency Response Commission (SERC) and the Local Emergency Planning Committee (LEPC).
- o Submit an annual report on total releases of toxic chemicals to States and EPA.
- o Immediately notify the SERC and LEPC of certain chemical releases and follow it with a written report that provides information on clean up and medical attention.
- o Notify the National Response Center of certain releases to determine the need for a Federal response under CERCLA.

- o Respond to EPA questions on causes of accidents, prevention practices in use at the time of the release, and initiatives taken to prevent them.
- o Provide annual notice of continuous releases and immediate notice of significant increases in continuous releases under CERCLA.
- o Be audited by the EPA under a variety of authorities, including CERCLA's imminent and substantial endangerment provisions.

The proposed bill would duplicate the intention of many of these existing requirements. In addition, some new provisions, like the penalty imposed for chemical releases, could provide a disincentive for companies to comply with existing reporting requirements.

I also would like to comment on the creation of the Chemical Safety and Hazards Investigations Board. I think the establishment of an independent board is unnecessary. It creates an expensive new bureaucracy to investigate accidents. EPA already has the authority to investigate and evaluate the causes of accidents. For example, under the National Contingency Plan already in effect, on-scene coordinators investigate and report on releases. Other Federal agencies are involved in these investigations through the National Response Team, which in turn makes recommendations on release-related issues.

In conclusion, I believe that the extremely hazardous air pollutant provisions of this bill do not recognize the role laid out for States and local communities in SARA. Nor do they recognize that information that can be used in decisions to prevent accidents and mitigate their consequences is already available, or can be made available. The provisions are costly, requiring the preparation of information that is complex and not suitable in all situations, and broad in coverage. I believe that a more sensible program could be developed after analysis of data from ARIP and the SARA Section 305 Study as well as from insights gained from professional organizations and the Congressional initiatives in Title III.

CONCLUSION

EPA has other concerns about the proposed bill as it has evolved so far. We are concerned that some of the NO_x provisions of this bill could actually exacerbate the ozone problem. State governments would have a very difficult, if not impossible, time submitting their initial commitments to new controls in nonattainment areas within three months. I do not believe it would be possible to control gasoline volatility to the level and on the schedule prescribed in this bill, without imposing extraordinarily high costs on refiners. Given the benefits of emissions trading, I do not think restrictions on trading should be included on a list of mandatory SIP requirements. We oppose the Outer Continenal Shelf provision because of its effect on development of this national resource and its interference with the ongoing regulatory negotiation on air quality in California. And there are a host of enforcement issues that this bill fails to address.

The Clean Air Act can be strengthened in some places, and in this testimony I have noted those provisions that I believe merit reexamination. But I do not believe that the existing Clean Air Act requires the kind of costly, inflexible, sweeping amendments proposed in this bill.

Under the provisions proposed in this bill, EPA would be forced to try to implement regulations that were not supported by the body of scientific data available today. We would be forced to try to implement regulations that were simply infeasible, because of technological, resource, or time constraints. The bill would impose enormous control costs on emissions sources, and an enormous administrative burden on EPA and the State governments, with the likelihood of only marginal environmental improvements. Also, the bill would weaken the traditionally strong, cooperative relationship between the Federal and State governments by limiting or precluding State and local participation in planning the emissions control measures that have a pronounced effect on people's daily lives.

For these reasons, I hope the Subcommittee will reconsider the provisions of the proposed bill and begin again with a narrower and more carefully crafted solution to the problems that exist. My staff and I will be happy to discuss our concerns about the bill in more detail, and I am prepared to answer any questions you may have.

CLEAN AIR ACT AMENDMENTS OF 1987

Air Toxics and Municipal Incinerators

THURSDAY, JULY 23, 1987

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION,
Washington, DC.

The subcommittee met, pursuant to notice, at 6:08 p.m., in room 406, Dirksen Senate Office Building, Hon. George Mitchell (chairman of the subcommittee) presiding.

Present: Senators Mitchell, Breaux, Durenberger, Graham, Chafee, Stafford, Moynihan, Lautenberg, and Baucus.

Senator MITCHELL. Good evening, ladies and gentlemen. The hearing will come to order.

Tonight we hear from two panels, one on air toxics and one on municipal incinerators. This is the second hearing on air toxic that is being held in order to give all concerned an opportunity to present their views on the legislation concerned in the committee's working paper. The advice we receive this evening will prove valuable in developing this provision further.

We'll also hear from witnesses about municipal waste incinerators, an issue that also affects hazardous waste problems. This is particularly true on the East Coast where half of the additional capacity is expected to be developed.

The hearing tonight will conclude promptly at 7:45, if not sooner. As you can see from the attendance here, this is not the most popular time to hold hearings. I apologize to all of the witnesses and to the other persons here for the inconvenient time caused by other commitments.

The first panel deals with air toxics—and I'll read off the names and ask them to come forward as I do so: Mr. Earl Arp, Director of Industrial Hygiene and Safety, the Ashland Oil Company, representing the American Petroleum Institute; Ms. Karen Shewbart, Environmental Manager for Texas Operations of Dow Chemical, representing the Chemical Manufacturers Association; Mr. William Seitz, Executive Director of the Neighborhood Cleaners Association; and Mr. Richard Ayres, Chairman of the National Clean Air Coalition.

I welcome all of you. I will begin by reminding you and the witnesses who will follow you of the committees rules regarding testimony. All written statements will be placed in full in the record. We ask that you keep your oral remarks to five minutes each. Provide a summary of your remarks hitting the highlights and points you feel most important in order to give full time for questions and for all witnesses to be heard.

The lights on the box before me indicate: as long as a green light's on, keep talking, when the yellow light comes on you better start thinking about wrapping up, and when the red light comes on please stop.

We'll begin in the order listed on the agenda with Mr. Arp. Mr. Arp, welcome. We look forward to hearing from you.

STATEMENT OF EARL ARP, DIRECTOR, INDUSTRIAL HYGIENE AND SAFETY, ASHLAND OIL, INC., REPRESENTING THE AMERICAN PETROLEUM INSTITUTE, WASHINGTON, DC

Mr. Arp. Thank you. Good evening Mr. Chairman.

My name is Earl Arp. I'm director of Health and Safety for Ashland Oil, and I'm here this evening on behalf of the American Petroleum Institute, API, to present our views on title V of the committee working paper.

API's position is that the regulatory approach embodied in the bill is ill-conceived, and ultimately will defeat the vital public health objectives all of us share.

Unchecked, the zero-risk philosophy embodied in this bill could drive a zero emissions policy that, in turn, could ultimately lead to a shut down of many industrial facilities in this country.

The crucial shortcomings of title V are the following:

Title V over-simplifies the concept of toxicity. It ignores the established scientific fact that chemical risk is determined by the toxic potential of the chemical and the rate and duration of exposure.

Title V treats all chemicals on the SARA lists as equal, and any amount of exposure as hazardous.

Furthermore, title V would require action without the benefit of a sound scientific basis.

It is essential that we rely on the best available scientific data to make our health-based decisions. And, as Lee Thomas said in his testimony yesterday, to prejudge the science to make what is, in effect, a scientific judgment without having adequately considered the scientific evidence supporting that judgment is likely to lead to public policy decisions that are difficult to implement and to defend.

Title V embodies a zero risk philosophy that should be rejected because it fails to differentiate between major and insignificant risks. It could force indiscriminate use of finite public health resources to control any risk, even if small or virtually non-existent, and thereby limit our ability to address serious public health hazards.

Title V also introduces a major policy change: protection of the public health from the adverse effects of hazardous pollutants, which is the appropriate goal of the current law, would be undermined through a single-minded focus on protection of the imaginary "most exposed" persons.

Protecting the public health is a complex issue. The toxic potential of a chemical must be considered, together with the rate and duration of exposure; however, the impact of regulation must be considered as well. The regulatory action will result in a severe economic dislocation; the consequences of that dislocation must be considered.

As the U.S. Public Health Service has pointed out, the single greatest risk to a person's health and the health of his family is loss of economic status. The degradation of status can come through loss of employment, and these are not theoretical risks.

The health and other hazards of unemployment are real, countable risks, based on actual human experience. They include reduced access to education, housing, health care, good nutrition, and security.

Additionally, title V could severely limit EPA's flexibility to use risk assessment in decision-making. The risk assessment process, imperfect though it may be, allows us to assess and compare the degree of these risks and to prioritize our management decisions to ensure that we identify and eliminate or control risks that threaten public health.

In its absence we increase the likelihood of randomized priority setting with attendant chaos, misallocation of available health protection resources, thereby diminishing the risk reduction which we're capable of achieving.

It is necessary, in a world as complex as ours, to allocate the limited human, material, and financial resources we have to address solutions to public health problems. The greatest reduction of risks and the greatest improvement in the quality of our lives comes through these resource allocation decisions. The Washington Post recognized this in a July 20 editorial, and raises the same point about the appropriate allocation of funds for environmental controls.

Title V ignores the plain fact that all risks cannot be eliminated, that resources for this purpose are finite, no matter how much we wish otherwise, and thus we have no choice but to prioritize our efforts, much as EPA's Hazardous Air Pollutant Program has attempted to do.

In addition to the fact that the zero emissions philosophy lying at the heart of this bill is futile and ultimately self-defeating, the specific emissions reduction program called for in title V appears to go out of its way to impose unnecessary costs.

There's a complex regulatory path, which could require most emissions sources to retrofit or dismantle existing controls and replace them with stricter ones. The criteria the bill sets for determining the new emissions level is the availability of new technology, and no consideration of what incremental health or environmental benefits to be gained, or of the cost, is provided.

There is an even chance that as proposed title V will actually undermine the public health by creating a fertile new source of bureaucratic confusion, needles program duplication, regulatory paralysis, litigation, and delay.

In conclusion, title V should be rejected. What Congress should do now is take a hard look at how EPA has used its existing legislative authority, and what improvements could be made under that authority.

API stands ready to participate constructively in a public dialogue on this topic.

Senator MITCHELL. Thank you very much, Mr. Arp. Ms. Shewbart.

STATEMENT OF KAREN L. SHEWBART, ENVIRONMENTAL MANAGER FOR TEXAS OPERATIONS, DOW CHEMICAL, REPRESENTING CHEMICAL MANUFACTURERS ASSOCIATION, WASHINGTON, DC

Ms. SHEWBART. Thank you, Mr. Chairman.

I am Karen Shewbart, Environmental Manager for Dow Chemical's Freeport operation. I have overall environmental responsibility for one of the largest petrochemical complexes in the world. In 1986 we safely handled over 4,000 chemicals, produced over 24 billion pounds of product valued at about $3.3 billion.

I am testifying on behalf of the Chemical Manufacturers Association and the Dow Chemical Company.

I appreciate the opportunity to speak with you this evening. CMA will be submitting a statement for the record detailing the concerns we have with title V.

From my perspective I would like to describe how Dow has controlled toxic air pollutants. Further, I shall explain why changes in Section 112, and additional regulation of extremely hazardous air pollutants are not necessary at this time. We are firmly opposed to title V.

The chemical industry has significantly reduced toxic air pollutants as a result of volatile organic chemical regulations. Using the SARA 313 list you will find that 105 of the compounds are VOC's and are already stringently controlled by existing regulations. In fact, for Dow, VOC's, which include toxic air pollutants, have been reduced by over 90 percent over the last two decades.

Mr. Chairman, I would like to show the subcommittee air emission data from Dow's two largest operations. As you can see by this graph our Texas operations have reduced volatile hydrocarbon air emissions by 55 percent since 1975. We project a further reduction below current levels of 30 percent over the next two years.

Senator MITCHELL. Ms. Shewbart, would you excuse me. A vote is now in progress in the Senate. Senator Breaux has cast his vote on that, I have not, so I will regretfully have to leave now to vote. I ask you and the other panelists to continue. Senator Breaux will chair the hearing in my absence. I apologize to you, Ms. Shewbart. Thank you. You may proceed.

Ms. SHEWBART. Similar reductions of 75 percent can be seen for our Midland, Michigan, site, with a planned 50 percent reduction over the next two years. This second graph is a photocopy of an article which appeared on the front page of the daily newspaper in Midland, Michigan.

These reductions were achieved in two ways: through our own initiatives, and as a result of effective VOC regulations under the existing Clean Air Act.

I would like to now focus on the two other sections of the proposed legislation: hazardous air pollutants and extremely hazardous air pollutants.

Congress recognized that human health should not be compromised and wrote Section 112 to regulate only those compounds that adversely affect human health. This section sets forth a definition of hazardous air pollutants to guarantee that this special focus is maintained. The radical changes proposed in this legislation will dilute this priority by defining a greatly expanded universe of chemicals to be regulated.

All compounds are acutely or chronically toxic at some level, and hence could be defined as a hazardous air pollutant under title V. The objective of an air toxics program must be to prioritize efforts and regulate those compounds that pose the greatest threat to human health.

EPA's present efforts under section 112 of the Clean Air Act are specifically aimed at the compounds perceived to have the highest risk. Because of the large list of compounds that this new legislation addresses, the agency's effort on the prioritized compounds could be diminished, and the net result could be less human health protection rather than more.

Although we have a few concerns, CMA and Dow support EPA's current efforts to regulate a number of compounds under their generic NESHAP. In fact, we urge the Administrator to move forward with this proposal. Congress should support continued progress, not propose sweeping changes that will have the net effect of slowing or stopping current progress.

Briefly, a few thoughts on the extremely hazardous pollutant section of this bill. These provisions duplicate existing Federal programs under OSHA and SARA Title III and are not necessary. Let's look at the results of SARA Title III before passing additional conflicting legislation that does more to confuse the issue than to resolve it.

To summarize, Mr. Chairman, let me repeat why Dow and CMA oppose title V. The data I have shown proves that dramatic progress has been made in the reduction of air toxics within the framework of the existing Clean Air Act.

Second, the proposed scatter-gun approach of title V with over 300 compounds to be addressed will greatly dilute the focus of the agency on controlling identified air toxics problems.

We feel that attaining clean air goals and protecting human health depends on support and implementation of existing programs rather than radical restructuring, as mandated in this bill. We all share the same concerns for the environment.

I will be happy to respond to any questions you or the subcommittee might have.

Senator Breaux. Thank you very much.

Mr. Seitz is the next witness.

STATEMENT OF WILLIAM SEITZ, EXECUTIVE DIRECTOR, NEIGHBORHOOD CLEANERS ASSOCIATION, NEW YORK, NY

Mr. Seitz. My name is William Seitz, and I'm the executive director of the Neighborhood Cleaners Association, and I'm here on behalf of over 4,000 members of the Neighborhood Cleaners Association, a nine-state group which covers the largest dry cleaning market in the United States, and probably the world. NCA includes New York, New Jersey, Connecticut, Massachusetts, Rhode Island, Pennsylvania, Delaware, West Virginia, and Florida.

I do not come before you as a scientific or technical expert to comment on S. 1384. Quite honestly, I am not familiar enough, at this time, with the in-depth ramifications that the proposed bill covers and its potential impact that it can have on the drycleaning industry.

Let me state emphatically that the drycleaning industry does not take an adversary posture regarding regulations to control emissions of hazardous air pollutants. On the contrary, we have demonstrated by our actions over the last 7 years of government regulations, and over the last 45 years, as a matter of economics and safety, that control, containment, and reclamation of the drycleaning solvent used by over 95 percent of our members, and by over 75 percent of the drycleaners throughout the United States, is a necessary and essential requisite. We are concerned about the committee's concept of listing of chemicals by EPA that does not take into consideration the differences of how these chemicals are being used by one industry as compared to another.

The chemical that I'm referring to is the drycleaning fluid perchloroethylene, also known as tetrachloroethylene or perc. There has been, and continues to be, a serious difference within the scientific community as to the potential hazard the solvent poses to the workers and the public. Just this morning I, along with a group of industry representatives, met with Mr. Lee M. Thomas, Administrator of the U.S. Environmental Protection Agency, to review the progress of the deliberations of EPA and the Science Advisory Board regarding the classification of perchloroethylene.

There is no alternative solvent available to the industry that can replace perchloroethylene, and in my opinion there need not be one in terms of what the drycleaning industry has done to significantly reduce the exposure and emissions of the chemical in the work place and in the atmosphere.

The drycleaning industry has always recaptured or reclaimed perchloroethylene, and has accepted the concept of reasonable available control technology as developed for the industry by EPA. I would like to amplify that statement by being more specific in terms of what the industry has done historically, presently, and future developments.

From the very first drycleaning machine using perchloroethylene, the equipment was engineered to reclaim the solvent. Under normal circumstances this technology was capable of recapturing from 85 to 90 percent of the solvent left in the garments. In the mid 1960's (before EPA), a new concept was developed to further reduce the loss of solvent. The solvent absorber, or "sniffer" as it's known in the industry, was a separate unit that was added to the reclaiming unit that collected the solvent vapors that were being vented to the atmosphere. The addition of the solvent absorber increased the efficiency of the operation so that up to 96 percent solvent reclamation was achievable.

With further technological developments, examples being refrigeration and azeotropic recovery systems, 98 to 99 percent reclamation has been achieved in many drycleaning plants. Over 60 percent of the drycleaning industry is presently using one of these methods as an integral part of the drycleaning operation.

Over seven years ago, as a result of a requirement by the Nassau and Suffolk County Health Departments in New York to discontinue the dumping of contact water during reclamation cycle, NCA developed and engineered a device, "enviropure," that eliminated the problem. Over 800 of these units are presently in use.

The drycleaning industry was the first small industry to accept the need for proper disposal of hazardous waste. NCA has had a program in operation for over four years prior to RCRA's requirements for small quantity generators, for the legal disposal of hazardous waste disposal service. The overwhelming percentage of the remaining 35 percent who are involved are below small generator standards and are not required to use a licensed carrier, although many still do.

New developments and improvements in drycleaning machinery and auxiliary equipment are taking place at a rapid rate. State of the art refrigeration, heat pump drycleaning machines that do not vent to the atmosphere, known in the industry as closed loop, are the standard for new drycleaning plants opening and replacement drycleaning equipment. This does not mean zero emissions, but once again a significant reduction in the emissions that the committee is concerned about.

Transfer units are no longer being made so that all new installations and replacements will be more efficient and will further reduce emissions. The cost of this new equipment is high. The average drycleaning machine installed is in the area of between $30,000 to $50,000. Please realize that the average drycleaner in the United States has a volume of somewhere between $100,000 to $125,000 annual sales, and on an average employs two to three people, plus the owner, who more often than not is a productive employee, and his net profit averages somewhere between 8 to 10 percent.

Of great importance is the fact that approximately 55 to 60 percent of the drycleaning machines in use are transfer units, mostly retrofitted in order to meet the standards, that range in age from 5 to 25 years old. Many of the older machines are being replaced, but it is an evolutionary process.

What I believe is necessary is for this committee and the appropriate agencies to recognize what the reality of that situation is. The idea that industry must reach zero risk is not realistic. A more realistic and achievable objective would be the protection of the population at large from unreasonable risk, with the objective of further reductions, but, most important, at a reasonable rate.

The problems of the environment is a serious one that we must improve and correct. I do not believe that any business or industry should be exempt from its responsibilities to participate in the process. Despite the fact that small businesses tend to be somewhat reactionary or reluctant to spend their precious dollars on new technology, there are exceptions, and what I have tried to do is to show you that, by the factual data available, in the drycleaning industry, with few exceptions, we have accepted this responsibility in an ever-changing world, and have responded in a positive and responsible manner, and will continue to do so in the future.

What is essential to meet the objectives that you have outlined and have the responsibility to accomplish, is a reasonable and moderate approach. The problems that exist today did not occur overnight. The contamination of the air and water has taken place over many years, we should not have to wait as long for the solutions. But where an industry has demonstrated its commitment and willingness to participate in the process, it should be given the chance to succeed, but you must let it survive in order to achieve these goals.

Thank you.

Senator **Breaux**. Thank you, Mr. Seitz. We next have the final witness on this panel, Mr. Richard Ayres, Chairman of the National Clean Air Coalition.

STATEMENT OF RICHARD E. AYRES, CHAIRMAN, NATIONAL CLEAN AIR COALITION, WASHINGTON, DC

Mr. **Ayres**. Thank you, Chairman Breaux, members of the committee.

The National Clean Air Coalition supports the air pollution provisions in title V of the bill. Toxic air pollution causes thousands of cancers a year, and many other serious illnesses which this subcommittee has heard described in previous hearings.

The current EPA program has become an excuse for endless study and must be overhauled and revitalized. The bill before the subcommittee does that: Part I assures that available technology will be installed quickly to begin the job of protecting the most vulnerable citizens; Part II would deal with any health threats that remain by providing incentives for developing substitutes enforcing technology; Part III would prevent sudden catastrophic releases; Part IV creates a panel analogous to the National Transportation Safety Board to investigate catastrophic releases and recommend ways to avoid recurrences.

There are several areas where we believe the bill needs improvement. We suggest the following: first, major toxic chemical classes should be regulated by class, not——

Senator **Breaux**. Richard, let me interrupt you. Where are you reading from?

Mr. **Ayres**. I believe I have a written statement, which I think was passed around.

Senator **Breaux**. Yes. I've got that, but you're reading from something. I'm just trying to find out where you are.

Mr. **Ayres**. Oh. I'm just at the top of page 2 in the statement before you, Senator Breaux.

Senator **Breaux**. Okay.

Mr. **Ayres**. Okay?

Senator **Breaux**. Okay.

Mr. **Ayres**. The bill should cover dioxin and other polycyclic organic matter; asbestos should be phased out entirely in the bill; toxic solvents should be phased down; solvent suppliers should share responsibility for ensuring compliance by solvent users; Congress should roll back levels of BTX in gasoline; and some of the bill's timetables can be shortened.

Mr. Chairman, I would like to comment briefly on the objection to this bill as zero-risk legislation. In 1970 Congress decided that all American's had a right to freedom from involuntary exposure to toxic chemicals. They directed EPA to issue regulations to accomplish this policy goal. Even then, some argued for a different policy, a policy of sacrificing the health of some for the financial benefit of others under the rubric of cost benefit analysis. The Congress rejected this warmed-over nineteenth century utilitarianism.

It is clear that some pollutants are unsafe at any level of exposure. To achieve the goal of the law requires eliminating these emissions. The possibility that this goal is inconsistent with the production of some kinds of chemicals was understood and endorsed by the key authors of the Clean Air Act in 1970 from both parties.

Now, however, the EPA administrator and others say that because some pollutants are dangerous at any level, Congress should abandon the goal of full-health protection. This is not a defensible policy. As a moral matter it's obnoxious to the value we, in this society, place on human life. As a practical matter, it does nothing to spur the development of non-toxic substitutes and better control technology.

I also want to take just a few moments to respond to Administrator Thomas' testimony yesterday and make some general observations about this year's clean air debate.

I am amazed at the number of industrial interests who fought so bitterly against the Clean Air Act in 1970 and 1977, but who now assure this subcommittee that the law is working well and needs no change.

This theme was expressed at length by Administrator Thomas yesterday. While he concedes our remaining air pollution problems are challenging, complicated, and difficult, he professes no interest in significant new legal authority to achieve clean air, nor does he want Congress to establish new clean-up deadlines or other bench marks of progress, nor does he think penalties should be increased. What Congress should do, he says, is step back and let him continue to implement and enforce the Clean Air Act with all the vigor and aggressiveness he has applied over the past four and a half years.

Mr. Chairman, the Environmental Protection Agency's record over the last several years provides eloquent refutation of that argument. Of the few major rules issued since 1982, most were forced out of the Agency by Federal Court orders, or more recently by your hearings, or were decisions to weaken earlier regulations, or not to regulate.

Nevertheless, Mr. Thomas told you that you should keep out of clean air policy and leave it to EPA. This kind of Executive Branch arrogance is unacceptable on its face, but in the case of the Clean Air Act there's also a more subtle purpose. The fact is, Mr. Chairman, that the only progress we've made on clean air has come from Congressionally-imposed standards and deadlines. The only leadership on clean air has come from Congress.

Yesterday's testimony confirms that you and your colleagues—and not EPA or GM or USX—are the ones who must provide the leadership again.

Thank you, Mr. Chairman.

Senator Mitchell. Thank you very much, Mr. Ayres.

We'll now proceed to questions. In accordance with the committee practice, the first round of questions will be limited to 5 minutes each, and we'll have the questioning in the order in which the Senators appeared at the hearing.

If any member has a statement that they wish to insert in the record, of course we'd be pleased to do that as well.

Senator Breaux.

Senator **Breaux**. Thank you, Mr. Chairman. Let me ask Ms. Shewbart; the current Clean Air Act, as I understand it, addresses human risk as a standard by which we're trying to make sure we don't adversely affect human health. Is there an expression that the approach now expands that to include environment, and some have objected to that; do you have any concerns about that, and would you please explain them to me if you do?

Ms. **Shewbart**. Senator, I do have concerns about that. Currently section 112 is explicit in its protection of, its focus, and its prioritization on human health. Congress was wise, I think, in setting this out separately so that the proper emphasis could be placed on human health. This bill now expands and asks this section to also address the environment. It has brought 300-plus chemicals into the system to be evaluated, and I think that this is going to dilute the Agency's effort to prioritize their resources.

Senator **Breaux**. How can you argue that we should not also be concerned about the environment? How do we separate human health from a clean environment? Aren't we talking basically about the same thing?

Ms. **Shewbart**. Senator, I could not agree more that we should protect the environment, but what I've shown here is a way to protect the environment under the VOC regulations, not under section 112.

The fact of the matter is we're showing tremendous progress in reduction of air toxics and other compounds in the environment—emissions to the environment—speaks for itself that the Clean Air Act is accomplishing that. It doesn't need to be done—and it shouldn't be done—under section 112.

Senator **Breaux**. What would your people think that title V in this bill requires you to do that you're not required to do under the Clean Air Act, and why would it be bad?

Ms. **Shewbart**. There's significant changes to this bill. For one thing, in the extremely hazardous substance section of the bill it requires within 30 days of passage that the EPA will list those compounds that could acutely affect the population; for example, things like chlorine, which in an acute setting would affect the population. But it then requires restrictions to be put on these substances for routine emissions of that material, and that would require that swimming pools, municipal swimming pools, and so on, that have emissions of chlorine, would be regulated. There's even a tax of $5 per pound for emissions of these compounds that would be listed under this section. So there's some changes there.

Senator **Breaux**. Do you have any suggestions for the committee as to how you would like to see title V amended or changed?

Ms. **Shewbart**. I think there's some basic philosophical differences that we have with this bill. I think it is a no-risk bill. What we'd like to see is to have the current Clean Air Act enforced, and section 112 implemented, rather than to see the changes that we see coming in this bill.

Senator **Breaux**. Mr. Ayres, I think we got from Lee Thomas yesterday the feeling that EPA has to prioritize their pollution control efforts—that some are more important than others—and in order to do that they have to look at the relative risk associated with various compounds. Do you agree with that as a means of approaching the problem: looking at the relative risk associated with the various compounds?

Mr. **Ayres**. Well, what that has meant, in practice, is a lot of looking and not much regulating. That's the problem with the present program. What I think is good about this bill is that, in fact, it does do that kind of prioritizing. It starts—it doesn't prioritize by saying this chemical in one box and that chemical in the other. What it says is: when you have a group of toxic chemicals identified, the first step is to put on the available pollution controls. That eliminates a substantial amount of the risk. That can be done without elaborate risk/benefit calculation. That's getting some pollution control on.

The second step is to mop up the residual risk, and that's what's taken care of under the hazardous pollutant part of the bill.

So I think the bill is good in that it does set priorities. I think that the time has come to set some priorities here and not allow the EPA to continue to talk about setting priorities, but, in fact, not do much.

Senator **Breaux**. Well, in all honesty I think if we had to become the technical scientific experts in setting those priorities I don't know of anybody on our committee—certainly this member, in speaking for himself, can't do that. It's not my background, that's not my education. I want to ensure clean air, but I'll be darned if I can set priorities on what particular percentage of a certain chemical can be safely or not safely admitted in the air. We've got to trust that to somebody who has the scientific expertise to make that call. I can tell you "Don't put anything in the air that's going to dirty the air and be potentially harmful to the human health and environment." But I'll be darned if I can tell you what, in fact, is harmful to the human health and the environment.

The thing I'm concerned about—and you seem to not have any concern—is that we should make that decision, don't trust anybody in the regulatory field to do it. We can't do that, in this member's opinion.

Mr. **Ayres**. Senator Breaux, I don't think that this bill calls for you to be scientists, and I certainly would agree with your reticence to do that.

Senator **Breaux**. I'll tell you, if we accept what's in the bill with the numbers and the figures as the right rule of law, we are asking ourselves to be just that, because I don't know what those numbers mean.

Mr. **Ayres**. Well, what the bill has in it, of course, is a set of identified chemicals, which have been identified elsewhere as problem chemicals, with discretion for the administrator to remove them from the list if he decides that they are not appropriately there. So I think the decision about toxicity is in the hands of the administrator, where it should be.

What you're doing in this bill is saying once you have that list stop fooling around trying to figure out whether one chemical's a little more toxic than another; start by putting on the available control technology. Get that job done, then you have time to think about priorities among the remaining risks.

Senator **Breaux**. Thank you, Mr. Chairman.

Senator **Mitchell**. Thank you, Senator Breaux.

Senator Graham.

Senator **Graham**. Thank you, Mr. Chairman.

Ms. Shewbart, you commented about the failure to completely implement section 112, and that if that were done then the necessity of this provision in the bill would be obviated. What's your assessment of the standard that has been found to date in the implementation of section 112; and if it is less than satisfactory, why do you think that has been the case?

Ms. **Shewbart**. Senator, I think it has been less than satisfactory to this point, but there's a lot of scientific data that goes into those decisions, and two years ago, in 1985, the EPA came out with an air toxics policy that spelled out the criteria and the procedures under which a chemical would go through the Section 112 review.

Right now there are 65—I believe it's 65—compounds that are somewhere in the pipe; eight of them are ready to come out right now and be regulated under the NESHAPS, and in my testimony I urged that we go ahead and regulate those compounds under Section 112. So there's a number of compounds that are in the system right now that could come out and speed up that process, and I believe that that's what should be emphasized. We should emphasize the implementation of Section 112.

Senator **Graham**. Mr. Ayres, you had some critical comments to make about the testimony that we had yesterday from Mr. Thomas. I think if Mr. Thomas were here he would also reiterate his basic feeling that rather than new legislation, we need to implement that which is already available. What would be your evaluation of the current level of implementation of section 112; and if it's less than satisfactory, why?

Mr. **Ayres**. Well, Senator Graham, as you know only seven chemicals so far have managed to find their way through that process through the regulation.

Senator **Graham**. That's over a time period of how many years?

Mr. **Ayres**. Seventeen years that it's been in the law.

So I think that it's not really believable to imagine that only seven compounds are serious toxic threats out there that should be regulated under some sort of air toxics program. Looking at those results I think you have the reason for change.

I was just thumbing through—the report of the National Commission on Air Quality, which I was a member of, and which was recommended last night by Senator Simpson. This came out in 1981, and I just wanted to point out that that long ago the commission recommended strongly that the EPA be given the authority to regulate on this technology basis first on these pollutants so that the job could get done quicker.

The process that has developed results in a very, very slow process that produces standards almost not at all.

Senator **Graham**. Thank you, Mr. Chairman.

Senator **Mitchell**. Thank you, Senator Graham.

Senator Durenberger.

Senator Durenberger. Mr. Chairman, I ask unanimous consent that my statement might be made part of the record.

Senator Mitchell. Without objection.

OPENING STATEMENT OF HON. DAVE DURENBERGER, U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator Durenberger. And that I not tell any Vermont jokes, since we have the former chairman of the committee here to tell them.

And that I be permitted to make a couple of observations. One about you, Mr. Chairman, and my colleagues. I'm personally pleased, as one of the principal authors of this particular section, that people will take this time of day to come and listen to this and ask the questions that they do. I thank those of the affected community that have taken the time to react, also, and I just wanted to say a particular word for Bill Seitz and the Neighborhood Cleaners Association.

I guess of all of the testimony presented to us, plus all the work that's done with staff in advance of a hearing, I'd have to say the Neighborhood Cleaners Association did the best job of trying to tell us where we were wrong, and where we could be more helpful in achieving this objective. I'd like to say, Mr. Chairman, that's the purpose of these hearings, not to criticize what might appear to be meager efforts on the part of Senators, but to try to be helpful to the process. I think there's a model there in their testimony of that kind of effort.

Now, I kind of shift over to API because they've been not quite as helpful. But I have to say about Mr. Arp, about Ashland Oil, that Ashland sits in the middle of Minnesota, and it's the best thing we got at the end of our pipeline, and I appreciate the fact that API chose Ashland to represent them here today. We've had a terrific relationship for 8½ years, and I respect the company a lot. Just their views on air toxics leave a little something to be desired.

But on that point, Mr. Arp, and maybe just sort of by way of clarification, because this may be typical of things we read in papers, but in the July 8, 1987, home edition of the L.A. Times there's a headline, "Study Pinpoints Two Air Toxics Posing Greatest Danger," and just read a little part of it says—Larry Stammer is the writer:

> The greatest risk posed by air toxics to nearly the entire population of Los Angeles and Orange Counties comes from benzene, a produce of gasoline, and chromium from metal plating operations, the South Coast Quality Management District Report states. The rankings of the two air contaminants among 20 examined during a 20-year study funded by a $220,000 Environmental Protection Agency grant, mark the first time that the relative risks for breathing air toxics have been estimated for the South Coast Area Basin.
>
> Benzene and chromium each increase an individual's risk of cancer over a 70-year lifetime to as high as 100 in a million in the most populated areas of the two counties compared to the 1 in a million risk considered to be acceptable by various government agencies. In some areas, including metropolitan L.A., the individual risk of a lifetime exposure to Benzene may even be as high as 1 in 1,000.

Could you make a comment on that report, because it is, as I say, a recent one, but I'm sure you've heard that sort of thing before. I'm assuming, also, without knowing—and you might know the answer to this—that a great deal of control technology has already been put in place. Unical is one of the big refineries out there, and I'm assuming there's a lot of control technology in place in the basin already. What is your reaction to that kind of report?

Mr. ARP. Senator, I appreciate the acknowledgement, and we are certainly pleased to be a part of the Minnesota community.

I am not as familiar with the Los Angeles basin problems as you might imagine, not participating in that area. But I think that the article here has pointed out a topic that was highlighted in our testimony that is at variance with the underlying philosophy of this particular bill, and that is in the use of risk assessment in making evaluations and in prioritizing issues.

Our concern with this particular bill, of course, is in the zero risk philosophy; and zero risk, very simply, means zero exposure; and zero exposure translates into zero emissions; and zero emissions, when you turn it around, does not, in our judgment, reduce the risk to the American public.

Senator DURENBERGER. So what I hear you saying, then, is that you're not disagreeing with the fact that we should, in this committee, be looking at air toxics as we head into reauthorization of the Clean Air Act. It's the goal, in effect, that this section chooses the zero risk that you disagree with.

Mr. ARP. Certainly, Senator, I think that's a responsibility, in fact.

Senator DURENBERGER. Okay. Thank you.

[Senator Durenberger's written statement follows:]

OPENING STATEMENT OF HON. DAVE DURENBERGER, U.S. SENATOR FROM THE STATE OF MINNESOTA

Mr. Chairman, yesterday in my opening statement I discussed the problem that the city of St. Paul, Minnesota is having with carbon monoxide pollution. My message was that despite the very clear objectives of the Clean Air Act which were established ten years ago, very little has been done to reduce carbon monoxide pollution in St. Paul. And I said that the blame in part has to be put at the doorstep of EPA because it has failed to use its authorities under the Act to work with the city and with the State of Minnesota to solve the problem.

Today, I want to discuss a different chemical and a different community. The chemical is carbon tetrachloride. The community is the Kanawha Valley of West Virginia.

In November of 1983 Bill Ruckelshaus appeared at a hearing over in the House chaired by John Dingell. It was a hearing on air toxics. At that hearing, Mr. Ruckelshaus promised the Congress that the EPA would give new priority to the problem of toxic air pollutants. Mr. Ruckelshaus named 25 pollutants which would be given immediate attention with decisions to be made by the end of 1985. One of the pollutants among those 25 was carbon tetrachloride.

At the time of the hearing EPA prepared a brief written report on each of those 25 pollutants. A report which has been updated quarterly ever since. The first report indicated that evidence of the cancer-causing properties of carbon tetrachloride had been firmed up by the EPA as early as 1979 and that the health assessment document for this chemical had been written in 1982 and had completed review by the Science Advisory Board.

I have a copy of that health assessment document here with me. When Science Advisory Board signs off on one of these health assessment documents, that means the science debate has reached a point where decisions can be made. The document reviews all of the evidence and puts it in a form that the Administrator can use to determine whether the chemical is a hazardous air pollutant and whether regulations should be imposed.

This health assessment document for carbon tetrachloride was completed in 1982.

It contains a great deal of information on this chemical. Carbon tetrachloride is manufactured by 5 companies at 9 plants in the United States. It is used to produce

CFCs, as an industrial solvent and for export as a grain fumigant and pesticide propellant.

32.2 million metric tons of carbon tetrachloride are manufactured each year. 4.5 million pounds are emitted into the air from production facilities. The total nationwide air emissions of carbon tetrachloride from all sources are estimated at 65 million pounds a year.

The atmospheric lifetime of carbon tetrachloride is estimated at 60 to 100 years, so it gets up to the stratosphere. Its presence in the stratosphere is of concern because it depletes the ozone layer. Current estimates of ozone depletion due to carbon tetrachloride alone are 0.3 to 0.5 percent.

Carbon tetrachloride, inhaled or ingested, causes liver, kidney, and neurological damage. The carcinogenicity of carbon tetrachloride has been well-documented with both the International Agency for Research on Cancer and the National Cancer Institute identifying it as an animal carcinogen. It is a suspect human carcinogen.

Under section 112 of the Clean Air Act, the Administrator of the Environmental Protection Agency is required to review these health assessment documents and determine whether the scientific evidence they contain warrants regulation of the chemical as a hazardous air pollutant. I am sure that Mr. Thomas has reviewed this particular health assessment document and is familiar with the evidence it contains. EPA has, in fact, announced an intention to regulate carbon tetrachloride as a hazardous air pollutant at some point in the future.

But no regulation for sources of carbon tetrachloride has been proposed. It has been 8 years since the cancer evidence on carbon tetrachloride was firmed up. It has been 5 years since this health assessment document was blessed by the Science Advisory Board. It has been 4 years since Bill Ruckelshaus promised the Congress that this chemical would get high priority. It has been 3 years since Lee Thomas was sworn in as the Administrator of the Environmental Protection Agency. Yet no regulation under section 112 for carbon tetrachloride has been proposed. The chemical has not even been formally listed as a hazardous air pollutant as the law provides.

Now let's look at the effect of this delay. I want to show the committee three charts from a study done by the Environmental Protection Agency on air pollution in the Kanawha Valley of West Virginia. These charts are attached to the end of my statement so that members of the committee can review them. The first table shows emissions from facilities in the area of Belle, West Virginia. And it shows that two plants, one owned by Occidental and one owned by Dupont, are emitting carbon tetrachloride totaling 22.9 metric tons per year.

And the second table summarizes all of the emissions from all of the sources in the whole valley. And this table again shows emission of 22.9 metric tons for carbon tetrachloride. You will see it there about two-thirds of the way down the list on the second table. So the whole inventory of carbon tetrachloride emissions in the Valley come from those two chemical plants near Belle.

The third table is a summary of the cancer risk that the average person in the Valley may be facing as a result of exposure to some air pollutants. It shows the risk contributed by each of the individual chemicals. And for carbon tetrachloride it shows a risk of approximately 1.5 excess cancers for every 100,000 people. That is the risk of getting cancer from exposure to carbon tetrachloride as a result of breathing air in this community.

Now, you might say that is a very low risk, a risk this community can absorb in order to receive the benefits of modern society. We will hear testimony like that this evening. But at the bottom of this table we have another risk estimate. A much more troubling estimate. It says 1 x 10 −3 (1.3 times 10 to the minus 3). That would be somewhat more than 1 excess cancer for every 1,000 people living in this community. That's the sum of all the individual chemical risks you see in this third table. That's a very troubling number.

And even that is only part of the risk of getting cancer from breathing the air in the Kanawha Valley. It is just for this list of eighteen chemicals—the chemicals EPA studied—not all the chemicals that may be emitted to the air in that community. And it is the average risk. Depending on where exactly one lives in the Valley the risk may be much higher.

We could have done the same exercise for many of the other chemicals listed here in this final table. Methylene chloride. Butadiene. Trichloroethylene. Chloroform. Cadmium. Perchloroethylene. Ethylene oxide. Acrylonitrile. And so on. In each case the science is done. In each case its clear the emissions of the chemical should be reduced. In each case, the chemical is making a contribution to a significant cancer risk for the people of the Kanawha Valley. But in each case, no proposed regulation has been issued by EPA.

Now, some may respond to this statement by saying that EPA can and EPA will regulate all of these chemicals under the existing section 112. EPA has announced an intention to list each of these chemicals. That is why I picked these chemicals. They illustrate perfectly the record this Administration has made with the flexibility contained in the current Clean Air Act. It is a meager record at best, a record of intentions rather than results. Eight years after the evidence was firm, five years after the science was blessed, four years after this problem became a high priority at EPA, the only step taken is announcement of the intention to regulate at some time in the future. Meanwhile, the people of one community in West Virginia continue to face extraordinary risks from these and other chemicals in the air they breathe.

That, Mr. Chairman, is why I have joined with you and other members of this committee to sponsor title V of the bill before us.

TABLE 1

KANAWHA VALLEY TOXICS SCREENING STUDY

KANAWHA VALLEY AIR QUALITY REPORT

SUMMARY OF EMISSIONS DATA FOR SELECTED POLLUTANTS
(METRIC TONS/YEAR)
ZONE: BELLE

Page 1 of 4

	Point Sources[2]		Area Sources[3]					
Pollutant	Occidental	Dupont-Belle	Solvent Uses	Road Vehicles	Heating	Gas Marketing	Waste Oil Burning	Totals
Methylene chloride	83.0	2.9	7.0	0.0	0.0	0.0	0.0	92.9
Chloroform	70.8	1.3	0.0	0.0	0.0	0.0	0.0	72.1
Carbon tetrachloride	20.1	2.8	0.0	0.0	0.0	0.0	0.0	22.9
Formaldehyde	0.0	8.1	0.0	4.0	2.5	0.0	0.0	14.6
Benzene	0.0	0.0	0.0	13.9	6.1×10^{-2}	0.4	4.0×10^{-5}	14.4
Perchloroethylene	0.0	0.0	12.6	0.0	0.0	0.0	1.0×10^{-4}	12.6
Trichloroethylene	0.0	0.0	1.7	0.0	0.0	0.0	1.0×10^{-4}	1.7
1,3-Butadiene	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Ethylene chloride	0.0	0.0	0.0	0.0	0.0	3.7×10^{-2}	0.0	3.7×10^{-2}
Ethylene bromide	0.0	0.0	0.0	1.4×10^{-2}	0.0	3.7×10^{-3}	0.0	1.8×10^{-2}
Arsenic	0.0	0.0	0.0	0.0	1.2×10^{-2}	0.0	8.0×10^{-4}	1.3×10^{-2}
Benzo(a) pyrene	0.0	0.0	0.0	2.3×10^{-3}	3.1×10^{-3}	0.0	2×10^{-5}	5.4×10^{-3}
Cadmium	0.0	0.0	0.0	8.0×10^{-4}	4.4×10^{-3}	0.0	2×10^{-4}	4.4×10^{-3}
Beryllium	0.0	0.0	0.0	0.0	4.0×10^{-4}	0.0	8.0×10^{-5}	4.8×10^{-4}

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[2] Source: West Virginia Air Pollution Control Commission 1984 Emission Inventory, 1987.

[3] Source: Regulatory Integration Division, Office of Policy Analysis, EPA, 1987.

TABLE 15
KANAWHA VALLEY TOXICS SCREENING STUDY
KANAWHA AIR QUALITY REPORT
BOX MODEL CONCENTRATIONS FOR FULL STUDY AREA

POLLUTANT	TOTAL EMISSIONS kkg/yr	MODELED CONCENTRATION (ug/m^3) BOX MODEL	POPULATION-WEIGHTED CONCENTRATIONS BASED ON ISCLT*	Ratio: Concentration (Box Model) / Concentration
Benzene	82	3.6		
Perchloroethylene	71.8	3.2	-	-
Methylene chloride	145.7	6.4	-	-
Formaldehyde	50.9	2.2	-	-
Trichloroethylene	32.1	1.4	-	-
1,3-Butadiene	25.8	1.1	0.3	3.7
Ethylene chloride	0.26	0.01	-	-
Ethylene bromide	0.099	0.004	-	-
Arsenic	0.07	0.003	-	-
Benzo(a)pyrene	0.03	1.3×10^{-3}	-	-
Cadmium	0.025	1.1×10^{-3}	-	-
Beryllium	2.5×10^{-3}	1.1×10^{-4}	-	-
Carbon tetrachloride	22.9	1.0	0.4	2.5
Chloroform	134.3	5.9	1.8	3.3
Ethylene oxide	133.6	5.9	2.4	2.5
Acrylonitrile	45.7	2.0	0.8	2.5
Allyl chloride	2.0	9.0×10^{-2}	1.5×10^{-2}	6.0
Vinylidene chloride	.48	2.0×10^{-2}	1.4×10^{-2}	1.4
Vinyl chloride	5.10^{-4}	2.02×10^{-5}	7.4×10^{-6}	2.7
Propylene oxide	115.9	5.1	1.9	2.7
Average				2.8

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* Comparisons are valid only for pollutants emitted primarily by industrial sources because ISCLT was not used to model county-wide area sources.

TABLE 55
KANAWHA VALLEY TOXICS SCREENING STUDY
KANAWHA VALLEY AIR QUALITY REPORT

PRELIMINARY RISK SCREENING RESULTS
INTENDED FOR POLICY DEVELOPMENT

TOTAL UPPER-BOUND ESTIMATES OF LIFETIME CANCER RISKS TO THE AVERAGE EXPOSED INDIVIDUAL DETERMINED FROM BOX MODEL CONCENTRATIONS FOR POINT AND COUNTY-WIDE AREA SOURCE POLLUTANTS

POLLUTANT (Weight of Evidence)	UPPER BOUND RISKS TO THE AVERAGE AVERAGE EXPOSED INDIVIDUAL
Benzene (A)	2.9×10^{-5}
Perchloroethylene (B2)	1.5×10^{-6}
Methylene chloride (B2)	2.6×10^{-5}
Trichloroethylene (B2)	1.8×10^{-6}
1,3-Butadiene (B2)	3.1×10^{-4}
Ethylene chloride (B2)	2.6×10^{-7}
Ethylene bromide (B2)	8.7×10^{-7}
Arsenic (A)	1.3×10^{-5}
Benzo(a)pyrene (B2)	4.3×10^{-6}
Cadmium (B1)	2.0×10^{-6}
Beryllium (B2)	2.6×10^{-7}
Carbon tetrachloride (B2)	1.5×10^{-5}
chloroform (B2)	1.4×10^{-4}
Ethylene oxide (B1)	5.9×10^{-4}
Acrylonitrile (B1)	1.4×10^{-4}
Allyl chloride (B2)	2.0×10^{-9}
Vinylidene chloride (C)	1.0×10^{-6}
Vinyl chloride (A)	5.2×10^{-11}
Total	1.3×10^{-3}

Senator MITCHELL. Okay. Thank you very much, Senator.

Senator Chafee.

Senator CHAFEE. Thank you, Mr. Chairman. I just want to turn to the statement by Mr. Seitz from the Neighborhood Cleaners, and I read that over with considerable interest. We gave particular thought to the cleaners when we did the RCRA amendments several years ago.

I see the problems that you raise. There is an exemption of the 10-ton limitation, which, it seems to me, would take care of the small groups that you referred to on page 5. Would you comment on that? First of all, I am amazed, being a patron of drycleaning establishments, that there's some that function with a volume of $100,000 to $125,000 annually. I had the feeling I contributed that much alone to them.

Mr. SEITZ. It's very possible that you might.

Let's see, I think if I can respond to that statement first, I think that's part of the problem that exists, and that's the perception of what the drycleaning industry really is. Now, there's no question that there are some very, very large drycleaners, but by and large the drycleaning industry is a typical mom and pop operation that employs two, three, four, five people.

Senator CHAFEE. That was the particular group you indicated concern for, and rightfully so, the annual $100,000 to $125,000 annual sales, employs two to three people including the owner who is, of course, a real worker himself in every instance.

Mr. SEITZ. Right.

Senator CHAFEE. I can't help but believe that they would fall below the 10-ton emission limitation bracket, wouldn't they?

Mr. SEITZ. Well, in many cases they do, except that they don't in terms of the implementation. For example, there are many cases where, under the small quantity generator exemption, they would be exempt. Correct?

Senator CHAFEE. Yes.

Mr. SEITZ. The problem is that when they go to dispose of hazardous waste, the company that collects their waste won't accept it because it's hazardous, so that there are many small——

Senator CHAFEE. You're talking about the RCRA, but I'm talking about this. The RCRA, that's over and done with. We think we've taken care of them there. I'm talking now the emissions, the section V of this bill, the air toxic control provisions. There is a small generator, if you would, factor in there of on the perc of 10 tons; isn't that correct, Mr. Seitz?

Mr. SEITZ. I don't think so. I think that's on petroleum solvents, if I'm not mistaken.

Senator CHAFEE. Well, okay. Maybe we're wrong. I thought there was an exemption in there of that amount.

I thought your statement was very interesting. The factor that—and I was amazed—25 percent of the industry, that is by unit volume, is owned by Koreans.

Mr. SEITZ. That statement amazes a lot of people; but once again it's a reality that has happened. By the way, I might add that that has happened in less than 10 years. But, for example, a city like the city of San Francisco, over 50 percent ownership of drycleaning plants in San Francisco now are Korean. If you take our 4,000 members—an interesting fact is that we happen to be the largest Korean association in the world. We have over 800 Korean members because somewhere in excess of 20 percent of the drycleaning industry that we represent is Korean.

Senator CHAFEE. That's a very interesting demographic fact, but let's get back to what we've got here.

Mr. SEITZ. I'm just trying to be responsive.

Senator CHAFEE. You're being very responsive.

Senator MITCHELL. I've got to ask you one question——

Senator CHAFEE. On your time, now, Mr. Chairman.

Senator MITCHELL. Extra time for you.

Senator CHAFEE. First I want to make it clear I'm 100 percent for the Koreans. There's no question about that.

Senator MITCHELL. But if you're the largest association in the world, who's doing the drycleaning in Korea?

Mr. SEITZ. Again, if you want an answer to that I'll give an answer to that, too.

Senator CHAFEE. They do the drycleaning, but they don't belong to the association. But you'll get them next week.

No, this is a serious business because, well, I'm confronted by it once a week when I go to my drycleaner, Mr. Lee. I'm impressed with what has been accomplished, but in each of your statistics you indicate that it's for a limited group. In other words, you say it can be done, and you are doing it, but presumably only the high-volume ones are doing——

Mr. SEITZ. No, on the contrary. The industry, since it's made up of predominantly small operators, the statistics that I give you obviously include an awful lot of small operators. It's not just the large ones.

Senator CHAFEE. No, I was talking about the large ones are doing the reclamation, if you would, of the solvents.

Mr. SEITZ. Every drycleaning machine that uses perc has been reclaiming perc from day one. That's an integral part of the drycleaning operation. There is an impression—an erroneous one—that prior to EPA's regulation the drycleaners were taking the solvent in their drycleaning operation and venting it to the atmosphere, and nothing could be further from the truth. If you're talking about petroleum solvents, that's a fact, but if you're talking about perchloroethylene, from the first drycleaning machine made reclamation was an integral part of the operation.

Senator CHAFEE. Let me just ask you, is there any data to indicate that those in the drycleaning business, through their exposure—after all, they're more exposed to perc and the other solvents than anybody else is—is there any indication that the health statistics on those who work in drycleaning establishments are different from the population at large?

Mr. SEITZ. There was a study made by EPA—I think it was 2 or 3 years ago, and I'm almost positive it was in Missouri, and the reason it was done in Missouri was that there was one of the States where there was a high percentage of union employees so that they had records, whereas in most instances the drycleaning industry is predominantly non-union, once again because of the small numbers of people working. But the result of that test showed that there was no significant——

Senator CHAFEE. Aberration?

Mr. SEITZ. No.

Senator CHAFEE. Fine.

Mr. SEITZ. In fact, in one instance it showed that there was less in the drycleaning industry, but certainly no more.

Senator CHAFEE. Thank you.

Thank you, Mr. Chairman.

Senator MITCHELL. Thank you, Senator Chafee.

Senator Lautenberg.

OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator LAUTENBERG. Thank you, Mr. Chairman, I have a statement that I would like to place in the record, and I have a few questions of this panel.

Senator MITCHELL. Without objection, so ordered.

[Senator Lautenberg's statement follows:]

OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Mr. Chairman, I'd like to commend you for for holding this hearing today.

Tonight we will examine controlling toxic air pollutants and emissions from municipal incinerators.

Both are key issues.

Toxic air pollutants threaten the health and safety of the nation. For 17 years, EPA has consistently and stubbornly refused to regulate toxics in the air.

We responded to this crisis with solid legislation, S. 1384.

There is support for this bill because EPA has shirked its responsibility for contolling and regulating toxics. In 1970 section 112 was include in the Clean Air Act. Its purpose was to address the problem of highly toxic air pollutants. To date EPA has promulgated regulations for only seven of these substances.

This failure exposes citizens in New Jersey and throughout the country to risks of cancer, and other serious illnesses. This is an issue with a broad public consensus. People want dangerous chemicals to be regulated. And, they are right.

EPA's own limited research spells out the problem. In a May 1985 air toxics study, EPA looked at a limited number of toxics. EPA estimated that for just this group of 15–45 chemicals, as many as 1700 cases of cancer occur annually in our nation.

New Jersey's Department of Environmental Protection indicates that for 10 toxics substances it has monitored, about 4.5 million tons are released in our state annually.

It's time to move ahead. A first step was the enactment of the Right to Know provisions I sponsored in the Superfund Admendments last year.

The second year is an air toxics emissions control program.

S. 1384 bill improves section 112 of the Clean Air Act. It closes loopholes in the current law that EPA has used to avoid taking action. It also sets up a schedule for Agency action, to accelerate decisions on regulation of dangerous pollutants under section 112.

The bill also creates a toxics "safety net." Over ten years, it phases in technology based emissions standards for the major sources of toxic pollutants.

The measure also seeks to reduce emissions from so-called area sources of these substances. It calls for a phased-in reduction of these air pollutants of 55 percent over 10 years. EPA has found that as much as 75 percent of the toxics problem comes from these smaller sources.

A third component of the bill seeks to prevent releases of some extremely hazardous substances from occurring. In New Jersey, over 350 accidental releases are reported every month. Out of these 350 releases, about 48 are serious enough to merit response action by the state.

There is still another issue I would like to address here today. We are finding that incineration is playing a larger and larger role in the disposal of our municipal wastes. But to some degree incineration has gotten a bad name. Early facilities were built without adequate controls. The result was incinerators that spewed forth dioxins and other toxins at levels far more hazardous than anyone ever anticipated.

So there has been growing concern about any and all incinerators. I too share these concerns. I am not prepared to trade our health for a quick and easy solution to the garbage problem.

However, I do not want to lightly dismiss what could prove to be a valuable option in solving our municipal waste problem. In combination with waste reduction and recycling, incineration may have important impacts. It has been estimated that incineration facilities may have the potential to decrease the ever increasing volume of waste produced by more than 90%.

The waste problem is steadily growing in communities throughout the United States. In many areas of the country, the issue is not whether we will have incinerators. They are already being constructed. The issue is whether we can ensure that these incinerators will not threaten our health.

Now is the time for action. A whole new generation of incineration units are being built all over the country. Millions of dollars have already been wasted on incineration facilities that ultimately failed to do the job. We have learned our lesson and it is time to capitalize on that lesson.

The Committee is developing legislation that will lay the foundation for regulations and standards that will raise the level of safety at incineration facilities.

I am hoping that the witnesses here today will provide us with the valuable insight we need to meet this goal.

Mr. Chairman, I'd like to commend you for holding this hearing. You have done much to move this nation ahead on the road to a cleaner environment. I look forward to working with you to enact much needed improvements to our clean air laws.

Senator Lautenberg. I just wanted to try and understand what our friends from the industrial component are saying here by way of suggesting that present law is working adequately, is doing the right kind of things—and there's, of course, wide disagreement among many of us here. In particular, when we look at section 112, which you, Ms. Shewbart, made some reference to. Tonight you heard from Mr. Ayres that EPA listed seven chemicals, among a list of many, as being worthy of regulation, in 17 years. That certainly doesn't suggest a high risked pace, does it, of overdoing this thing in any way? We don't see progress being made. I'd like to have a suggestion from you or Mr. Arp or Mr. Seitz—anybody—as to what we can do to improve things; or are we okay just as we are?

Mr. Arp, for reference to something Senator Durenberger was saying, chromium contributes about 12 percent of all the pollution that we find in the air. There isn't a rule out there dealing with chromium under either NESHAPS or TASK or any of them. These things indicate that we are barely moving at a snail's pace to get on with this task. We need help from you. You're here because we want to work together with you. No one here is anti-industrial, but the condition out there suggests—and if we hear the percentages, in some cases a risk of 1 in 1,000—that's fairly threatening. What can we do to improve the situation? Just wait?

Ms. Shewbart. Senator, is that a question for me?

Senator Lautenberg. Yes.

Ms. Shewbart. No, we're not satisfied with the pace of section 112. The EPA has recognized the risk of chromium, and they are proposing regulations on chromium in 1988, so those are in the pipeline, so to speak. As I stated earlier, there are eight more compounds under this generic NESHAPS that will also issue in 1988. I think since the EPA instituted their air toxics policy we are starting to see the progress that I know that you would like to see, and that we would all like to see.

On top of that, and additionally, we haven't been standing still with controls on toxic air pollutants. This is the data from Dow for 1986 that shows—well, since 1974, actually—that shows those 75 percent reductions in volatile organic compounds since that time under the existing Clean Air Act. The data really speaks for itself. The fact that a lot of compounds haven't been listed under 112 does not mean that we haven't had reductions of toxics and we haven't had reductions in total volatile organic compounds.

Senator LAUTENBERG. I wish that all companies would follow the model that Dow demonstrates, here, but that's not the case. I think you know that yours is, relatively speaking, exceptional performance in this regard.

Ms. SHEWBART. Senator, I think that the chemical industry's—those numbers are typical of the chemical industry.

The second thing I would like to say is that there is a mechanism in place. What we're saying is: there's not unlimited resources in the EPA or this country. There's a mechanism in place with title III of Superfund that will require the identification of emissions of these compounds that you're looking at as hazardous air pollutants. The data will be available next July as to what areas we ought to be working on; but we should not place all of these compounds into regulation at this point in time.

Senator LAUTENBERG. We'd agree with that, but here we're talking about some exceptionally toxic material recognized by many. And, by the way, as far as I know 1988 is not a year scheduled for rule-making for chromium. There are some guidelines that have been published for incinerators, but I don't think that there is any indication that we can hang our hat on that there are going to be rules for 1988 dealing with—in any of the departments, again, any of the sections—NESHAPS, TSLA here—for chromium. Mr. Ayres, you studied the field, is Dow typical of the companies that have reduced the potentially toxic or dangerous emissions?

Mr. AYRES. Well, I can't comment on Dow, in particular but I think if this chart, which I can sort of see from here, indicates high 90 percent reductions, that is not very typical for toxic compounds.

I doubt that it could be considered typical for VOC's in general, but I certainly don't believe that that is a typical performance for toxic compounds in the industry.

Senator LAUTENBERG. Mr. Arp, do you agree that we should have a regulatory scheme that assures that the public's not exposed to carcinogens?

Mr. ARP. We certainly support protection of public health. To add a little bit, if I may, to amplify on the question of Ms. Shewbart, our principal concern with this bill in regard to your question is the lack of science, the lack of reliance on the scientific process to guide decision-making. This was pointed out by Mr. Thomas very clearly in his testimony yesterday where he mentioned that in most cases, as the administrator, he's had to weigh the body of scientific evidence that was incomplete, uncertain, or contradictory. And I would point out that science does take time.

Senator LAUTENBERG. So science does take time, and my time is up, unfortunately.

Senator **Mitchell**. Thank you very much, Senator Lautenberg. Senator Stafford.

Senator **Stafford**. Thank you, Mr. Chairman. I have no questions.

Senator **Mitchell**. Thank you very much, Senator Stafford. Senator Moynihan.

Senator **Moynihan**. No, Mr. Chairman. Thank you.

Senator **Mitchell**. All right. Senator Baucus?

OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Senator **Baucus**. Thank you, Mr. Chairman. I have a statement. In the interest of time I'll ask that it be included.

Senator **Mitchell**. Without objection.

[Senator Baucus' statement follows:]

Opening Statement of Hon. Max Baucus, U.S. Senator From the State of Montana

Mr. Chairman, I commend you for delaying mark-up of Clean Air legislation until we could gather additional testimony on air toxics.

This evening's hearing will focus on the overall air toxics legislation of which I am a cosponsor. An important subject of our air toxics legislation is the problem of air emissions from solid waste incinerators.

I believe it is critical that the question of air emissions from incinerators be addressed in this legislation. Uncontrolled waste incinerators can be significant emitters of heavy metals, dioxins and acid gases. These incinerators tend to be located in heavily populated areas. A municipal waste incinerator is like a secondary smelter. The only difference is that we control emissions from smelters and not from incinerators.

While we need to control these emissions, we should not loose sight of why cities and towns are choosing to use municipal incinerators to address their solid waste management problems.

There has been a conscious decision by the public, local governments, and to the lesser extent the Federal Government, to move away from landfills.

A genuine solid waste management problem exists in this country over what to do with solid waste. I plan to hold a hearing during the first week of August to look at this issue.

I support taking action to control air emissions from waste incinerators. But I am concerned that in addressing the problems posed by incinerators, we not send the wrong signal. Landfills are still a source of deep concern. What is needed is to look at our total waste management strategy. It is not a question of either/or. It is a question of finding the right mix—a mix that includes getting hazardous constituents out of the waste stream, as well as the full range of waste management alternatives.

We need to move forward with Clean Air but not lose site of the broader questions of solid waste management.

Senator **Baucus**. I do have a question, though, of Mr. Arp; that is: among the various octane enhancers used by the petroleum industry today, which one is more suitable for human consumption. I'd like to know what the health effects of other enhancers other than ethanol are, in particular toluene and benzene?

Mr. **Arp**. You are asking, sir, the health effects of toluene and benzene?

Senator **Baucus**. Yes. Whether there have been any studies on the health effects of those two additives in comparison with ethanol.

Mr. **Arp**. I simply can't answer with respect to a comparison to ethanol. Certainly there is much literature on the potential health effects of benzene and of toluene. Much of that work has been sponsored by the American Petroleum Institute, and we'd be please do supply you with a copy of any of that work, as that would be beneficial.

Incidentally, as the work nears completion, summaries of the findings are transmitted to the government—to the EPA—routinely, and the complete reports are available when finished.

Senator BAUCUS. Would you support the provision in this bill requiring EPA to undertake a study on the health effects of those additives?

Mr. ARP. Certainly we would support study and valid risk assessment of air toxics.

Senator BAUCUS. And including health effects of those particular additives?

Mr. ARP. Certainly.

Senator BAUCUS. Okay. Thank you.

Senator MITCHELL. Thank you, Senator Baucus. Thank you gentlemen.

Senator BREAUX. I'd like to ask one question.

Senator MITCHELL. Sure.

Senator BREAUX. Mr. Arp, in your testimony you talked about risk assessment and how you thought that we were getting away from allowing any kind of risk assessments. You say that in anything we're going to do some risk is inherent. I said that yesterday. What kind of a standard are we going to put on industry? We could eliminate and get down to zero risk deaths on the interstate system if we put on a five mile per hour speed limit. No cars on the interstate would give us a zero risk from automobile accidents.

It's a question of how far we go in order to reach the goal we're trying to attain.

Let me ask a question with regard to title V dealing with hazardous air pollutants. The bill requires administrators, within 90 days, to list these chemicals that we spell out in the bill. I don't know how to pronounce their names let alone knowing what effect they have. It also says that the administrator shall add these other air pollutants to this list, and if the evidence indicates that in the case of non-threshold pollutants, the bad actors in this business, that the most exposed person, the person living next door to the plant, perhaps, the most exposed person may be exposed to more than a negligible risk of adverse health effects—I understand EPA, when they're talking about negligible, they're talking about 1 in a million—that that person may not have anything more than a negligible risk of adverse health effects.

So if we have a plant—and we've got a lot of them that probably are producing these type of pollutants that would affect the most exposed person in a manner that is more than a negligible effect, look in the next part of the bill it says then if that plant does that, you may get a 10-year exemption from the EPA if they determine that to regulate it, the company or the plant would experience an extraordinary economic hardship, and the plant could show that they have put on, in the meantime, the best available control technology, and they find out that after you comply with that that the maximum exposed person will not be exposed to more than a negligible risk of adverse health effects.

My question to either one of you representing some of the plants: can you do that? I'm concerned about shutting down my State because we are imposing a zero risk assessment, and there ain't no such thing as zero risk in this world, whether it's me driving home tonight, or flying to Louisiana tomorrow, or anything else. So my question, specifically, is: can you do that? Because if you can't, the bill says close up shop. Can you do it?

Mr. ARP. Senator, as——

Senator BREAUX. Are you going to tell me no, and then we pass the bill, and next year you're still out there operating. I'm going to be concerned. It's not a perjury question, it's just saying look, tell me the truth.

Mr. ARP. Senator, we couldn't agree with you more.

Senator BREAUX. Can you do it, though? That's my question.

Mr. ARP. Well, I don't understand what is being asked, because "most exposed"—it is not clear if that is a real person, an imaginary individual, if that is most exposed by modeling, by actual monitoring. Negligible falls into the real of some of the other terms that we have seen and had trouble with over the years in defining, and I think that in the absence of clarity, which you have pointed out very graphically here, that we simply will perpetuate the confusion and perhaps end up in a counterproductive mode.

Mr. AYRES. Mr. Chairman.

Senator BREAUX. Mr. Ayres, do you have any comment on that?

Mr. AYRES. Yes. I would like to comment on it, Senator Breaux. I think it's very interesting that you don't get an answer to your question, in that respect. I think that's probably because very often the industries have resisted toxic controls by arguing that they can reduce those risks down to those levels, that there's really no risk involved here and you should just leave us alone, you know, sort of Catch 22. I think my question about the real question you asked, what's the possibility that these things can be done, is that every time the Clean Air Act has been written or reauthorized those who were the subjects of regulation have said we can't do that, and I think the most clear example is the outer emission standards. Under regulatory pressure things have been do-able. Sometimes the deadlines have had to be extended by Congress, but the pressure of saying we have to do this job helps to move people to develop the technologies to do it. I think that's really the issue here in front of you.

Senator BREAUX. Mr. Chairman, could I just get Ms. Shewbart to make a response?

Senator MITCHELL. Go right ahead.

Ms. SHEWBART. Senator, I think there's a lot of things that go into what causes a plant to shut down. In Texas, for example, we have 20 percent less workers in the chemical industry than we did 5 years ago. In my own plant we have 82 separate plants within this complex in Freeport, Texas. We had 22 plants that are no longer producing in Texas in our facility. The reason for that, I'd say, is complex, but we're talking about competitiveness and we're talking about American jobs and the fact that these materials can be made all over the world, and some of our jobs are going to other places. It's a combination of all factors. I wouldn't want to say that I shut this plant down because of environmental requirements, but it's additional costs and burdens on the plant where we have to incinerate to zero emissions, or whatever control technology is put on, and our competition is not faced with this kind of a burden. I think Mr. Thomas said yesterday it was estimated at $33 billion. I don't know what the numbers are, but I know they have to be tremendously large.

Senator **Breaux**. But can it be done?

Ms. **Shewbart**. I don't know that it even can be done, because what we have to prove here is a negative. We have to prove that there is not adverse effect. You can't prove a negative. I don't know that we know what these definitions mean enough to say whether we can do it. I know we can't prove a negative.

Senator **Lautenberg**. Mr. Chairman, I did want to cooperate and try to move the thing along, but there has been a little bit of subject opening here that I feel compelled to respond to, especially since I come from the State that's perhaps one of the most rigorous in terms of enforcement of air quality in the country, New Jersey, and has the largest number of chemical employees of any State in the country—over 100,000. Industry and environment get along very well in New Jersey—competitive, make money—and it's an industry that makes money today.

So I think we have to kind of remove the myth that we can't compete. We can compete. We can compete with a health environment. And I would tell you, if you look at the poll results, you'll see that people will place environment ahead of the economic considerations by overwhelming majorities.

So, if the arguments being made are on that basis, it don't wash, to put it straightly. I would like to ask just one question, Mr. Chairman, of Mr. Ayres. Do you buy the statement made by the colleagues at the table there is no scientific evidence to support this legislation?

Mr. **Ayres**. Well, I certainly don't, Senator Lautenberg. Most of the compounds that are mentioned in this bill have either been identified by numerous international and national health authorities as problem pollutants—as toxic pollutants or cancer-causing pollutants, or are in a category of that sort, or are already named in some other piece of Federal legislation as a dangerous actor. So I don't think we're proceeding without science at all, and it seems to be the call for more and more and more science, and delay while that happens, really has to be evaluated in terms of on whose time.

If you wait to regulate for another 10 years, let's say, while there's another 10 years 'worth of science accumulated, well, the breathers are stuck with breathing whatever that risk is for those 10 years. So, in effect, what you're doing is gathering information on the breather's time, and I think that public policies should be the other way around if it has to be a choice. I don't think it has to be a choice, but it does seem to me if the choice is posed the benefit should go to the breathers, and not to the chemicals.

Senator **Lautenberg**. Thank you, Mr. Chairman.

Senator **Mitchell**. Thank you, Senator Lautenberg.

Ms. Shewbart, and gentlemen, thank you very much for your valuable testimony.

I'm going to identify the next panel and ask them to come forward, then I have a brief statement, then I'm going to ask Senator

Moynihan to make a statement regarding this next subject on municipal waste incineration. Mr. Donald Deieso, Assistant Commissioner, Environmental Management and Control, New Jersey Department of Environmental Protection.

Senator MOYNIHAN. Mr. Chairman, might we have some order please?

Senator MITCHELL. Those who wish to leave, please do so in a manner that permits us to continue the meetings.

Ms. Sheila Prindiville, Director of Solid Waste Programs, National Solid Waste Management Association; Mr. Jay Flaherty, Deputy Mayor of the City of Philadelphia, accompanied by Charles Martin, director of the Bath Brunswick, Maine, Refuse Disposal District; Dr. Ellen Silbergeld, Chairman of Toxic Chemicals Program, Environmental Defense Fund.

Welcome ladies and gentlemen.

Before recognizing Senator Moynihan for his statement, I'd like to make two announcements. The first is that the chairman of our full committee, Senator Burdick, has had a long-standing special interest in incinerators. He, unfortunately, cannot attend this hearing tonight, but we wanted to recognize his interest and leadership in this area with respect to the subject matter and pending legislation.

Now, I want to announce that the next meeting of this subcommittee will be next Wednesday evening, July 29th, at 6 p.m. to mark up title V of the working paper, which addresses air toxics, the subject of this evening's hearing. In light of the two hearings that have been held on this I'm asking the staff of the committee, along with staff of each member of the subcommittee, to review all of the testimony presented and to prepare a modified draft of Title V taking into account the testimony presented here, with special concern by Senator Durenberger's staff as he is the principal author of that provision.

Third, due to the interest expressed by many citizens in the committee working paper, and in order to ensure everyone the opportunity to make comments on the proposals before the full committee acts, I am announcing that the committee will receive written statements commenting on this pending legislation through August 31. Any person wishing to present their views to the committee on this subject may do so between now and August 31st. All such statements will be compiled and printed, distributed to committee members for their use in considering this legislation when we go to full mark-up, which we expect to be shortly thereafter.

So, with that——

Senator STAFFORD. Mr. Chairman.

Senator MITCHELL. Yes.

Senator STAFFORD. Mr. Chairman, there's some confusion in my mind. Is there a subcommittee meeting scheduled for the 30th, as well as the 29th?

Senator MITCHELL. Only if we cannot complete action on the 29th, and I'll say, Senator Stafford, it is my fervent hope and intention that we will be able to complete action on this subject on the 29th. I recognize the tremendous imposition that these evening meetings are on the other members of the subcommittee and want to have as few meetings as possible. I, again, take the opportunity to thank my colleagues, and I appreciate it.

Senator STAFFORD. Well, I thank you for the information, and I join in your fervent hope.

Senator MITCHELL. Yes, and since we are the ones who are in a position to do something about it, I hope that we will do so.

I'd like now to recognize Senator Moynihan, who has a special interest and has played a leading role in the subject of municipal waste incineration.

Senator Moynihan.

OPENING STATEMENT OF HON. DANIEL PATRICK MOYNIHAN, U.S. SENATOR FROM THE STATE OF NEW YORK

Senator MOYNIHAN. Mr. Chairman, may I first express appreciation for what you're doing. You're working all day long on the Iran Contra Hearings, and manage to work all night long, as well, and then you'll be back for tomorrow all morning long, which will start around 4.

Mr. Chairman, I have two thoughts. One is just gratuitous, if you like. I'm now in my eleventh year in this committee, and I keep being impressed by the difficulties we have in dealing with issues of scientific method. I once served on the President's Science Advisory Committee and got some sense on the way physicists and such like had learned to advise the civilian Executive Branch and the President himself.

I was struck to hear, today, one of our witnesses before say you cannot prove a negative. That wouldn't get you through high school biology. You begin the experiment with a no hypothesis, and if you can't disprove the no hypothesis you prove the negative. A science advisor to this committee would not be the worst thing.

But, sir, I have another thought on this incinerator matter. New York has been celebrated over the years as many things, but only as late for a garbage scow, and the distinction we'd probably as soon let pass. If it weren't for the honor of the thing we'd just as soon let it go by. It does bring into a certain focus the whole question of municipal waste, and if something like that hits New York first it's only because that's the first. You're going to find it in Brattleborough one of these days, Mr. Chairman.

Clearly, we're going to have to work. Recycling is, in the end, going to be the best resolution of this matter. You can't just dig holes, and you can't just dump. There's an end to that; we're already on the verge of it. So incinerators are going to be an increasing part of urban areas, and they have to be regulated. There has to be regulation, and it has to make possible the use of incineration and recycling, but it has to somehow anticipate misuse.

I think you're moving very well in this regard, and I want to thank you for doing so, and I stand with you all the way.

Senator MITCHELL. Thank you very much, Senator Moynihan.

Ladies and gentlemen, as you may know, a vote has commenced in the Senate, so Senators will be coming and going. We're going to try to keep the proceedings going. In my absence the hearing will be chaired by a series of Senators who happen to be present, and Senator Lautenberg will ultimately conclude the hearing as I have to leave before the hearing can terminate. So we'll begin with the witnesses as listed.

Mr. Deieso, thank you. We welcome you back before this committee. We've appreciated your excellent testimony in the past, and look forward to it again this evening.

STATEMENT OF DONALD A. DEIESO, ASSISTANT COMMISSIONER, ENVIRONMENTAL MANAGEMENT AND CONTROL, NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Mr. Deieso. Mr. Chairman, thank you very much. Members of the committee, good evening.

I appreciate this opportunity to share with you New Jersey's position on those components of the Clean Air Act which you are addressing this evening. On an earlier occasion I presented the State's position on ozone attainment; tonight I will address another important issue, municipal waste incineration.

I'd also like to take this opportunity to very briefly comment on several air toxic issues.

With respect to the municipal waste incinerators, legislation for control of air contaminant emissions from municipal waste incineration is appropriate and very timely. EPA is in the process of finalizing its report to Congress on municipal waste combustion, and has concluded that additional national regulation of municipal waste combustion is necessary.

The proposed legislation under consideration today would require EPA to promulgate the long overdue national regulations on this critical issue. Absent a comprehensive national regulation, States like New Jersey, while pleased to take the lead on regulating air pollution from municipal waste combustion, have had no choice but to develop State requirements for these facilities. Regrettably, this has resulted in a national mosaic of different state regulations and strategies.

Today there is no doubt that our position would be strengthened with Federal regulations in place. While New Jersey has no existing major municipal waste combustion facilities, we have, however, permitted several large resource recovery projects, one of which is under construction. It's likely that over 12 large facilities will be constructed in our State during the next 5 years, resulting in a capital expenditure of over $3 billion.

Although New Jersey will not be faced with the problem of retrofitting old facilities with modern air pollution control technology, we have considerable interest in this standard-setting requirement of the legislation here today.

All the facilities planned for New Jersey will be equipped with air pollution control technology, which incorporates state of the art in air pollution control. I've supplied copies of New Jersey's air pollution guidelines in this matter. These guidelines define maximum air contaminant emissions rates and minimum design standards for our facilities. I am pleased to say that New Jersey has the most stringent, most comprehensive resource recovery control program of any state, and for this reason I'm confident that new facilities in New Jersey will comply with any national rule making. Notwithstanding this, such national rule-making will be of benefit to New

Jersey, as well as to other states with less stringent air pollution control requirements, if for no other reason national regulations would increase public confidence in the environmental acceptability of municipal waste combustion facilities and assure a greater degree of national uniformity.

The Senate draft bill is generally consistent with air control requirements for our State. Let me indicate some of the highlights of the bill that we totally support.

The pollutants that are covered: we think it's very reasonable to require EPA to develop standards of performance for the 12 or so air pollutants specified in the bill. Although New Jersey sets limits for 17 pollutants in its permits for these incinerators, national performance standards could focus on a smaller list and still be quite effective.

In addition to those listed in the working paper we reviewed carbon monoxide, total nonmethane hydrocarbons, and hydrochloric acid, and we suggest that these be included for your consideration.

With respect to dioxins and furans, New Jersey uses 2, 3, 7, 8-TCDD, the most severe as the dioxin family, as the surrogate for these types of highly toxic chlorinated substances.

With respect to performance standards: we urge Congress to refrain from setting performance standards in legislation. This is, properly, EPA's role. Ensuring that performance standards are achievable and fully defined is best left to the administrative rulemaking process. The need for flexibility, thorough scientific review, and ease of revision all favor the administrative process.

There is another facet of the bill that we strongly oppose: post construction monitoring. The prospect of monitoring the environment and human tissue for the compounds emitted, to us, seem to be premature, difficult to implement, and questionable once the data were produced. While worthy of significant research, we know far too little about this matter to impose a hard and firm requirement at this time.

Let me suggest, too, that the continuous monitoring and stack testing we thoroughly endorse, as we do the operator training and certification. These operators must know the proper procedures.

In my last few moments, let me indicate several thoughts on the air toxics. We agree with those who suggest that EPA's performance in the Section 112 of the Clean Air Act has been disappointing. We suggest, too, that the process outlined in the bill is workable and does provide the necessary flexibility.

In the wake of Bhopal catastrophic releases of toxic substances has drawn considerable attention in our State, and we're pleased to be the first State to have the Toxic Catastrophe Prevention Act, a program aimed at the prevention of these releases. We applaud the recognition of the committee and of Congress that emergency preparedness provisions of SARA, Title III, are just a beginning. The finest of preparedness programs isn't going to change the fate of a release that takes just moments to enter a community. Prevention is the key.

We thank you for the opportunity this evening.

Senator **Moynihan**. Thank you, Mr. Deieso.

Ms. Prindiville, before you begin, there are less than five minutes on this vote. Senator Durenberger and I will have to leave. Other Senators are on their way back now, so we're going to take a brief recess, but I suggest you folks remain at the table because it will just be a couple of minutes before someone gets back, and you can then resume the hearing.

We'll stand in recess just briefly until one of the Senators return. I believe that will be just a moment or two. Thank you very much.

[Recess.]

Senator Breaux. The subcommittee will please come to order.

The Senate has decided that if we're brave enough to stay here, they're going to continue a vote, so the other members will be back shortly.

In the meantime we'll take the testimony of Ms. Sheila Prindiville, who is Director of the Solid Waste Programs with the National Solid Waste Management Association. Glad to have you.

STATEMENT OF SHEILA PRINDIVILLE, DIRECTOR, SOLID WASTE PROGRAMS, NATIONAL SOLID WASTE MANAGEMENT ASSOCIATION, WASHINGTON, DC, ACCOMPANIED BY RICHARD ANDERSON, ENVIRONMENTAL AFFAIRS MANAGER, SIGNAL ENVIRONMENTAL SYSTEMS; WILLIAM MACK, EXECUTIVE VICE PRESIDENT, OGDEN-MARTIN; AND DAVID SUSSMAN, ENVIRONMENTAL AFFAIRS VICE PRESIDENT, OGDEN-MARTIN

Ms. Prindiville. Senator, thank you for the opportunity to present comments on behalf of the National Solid Waste Management Association's Institute of Resource Recovery. I have with me this evening representatives of two of our member companies. I'd like to introduce Dr. Richard Anderson, who is the Environmental Affairs Manager of Signal Environmental Systems. I'd also like to introduce Mr. William Mack and Mr. David Sussman who are, respectively, the Executive Vice President and Environmental Affairs Vice President of Ogden-Martin.

Our prepared statement makes a number of points, and I would like to have that submitted for the record, but for this evening I would like to highlight only three issues: first, the Institute of Resource Recovery believes that waste to energy is a critical component of any national solid waste management system. We are producing, on the average, 220 million tons of solid waster annually. There is no magic bullet for the disposal of that waste; there is no single alternative for the disposal of that waste. Communities are finding it necessary to approach solid waste disposal as a management system, and for many communities that system will include, at a minimum, land filling, recycling, and resource recovery.

Resource recovery will be critical, both because it significantly reduces the amount of waste to be disposed, and because it recovers useful quantities of energy.

Our second point, Senator, is that the Institute of Resource Recovery supports a comprehensive Federal regulatory framework for resource recovery facilities both for the predictability that it will provide to the waste services industry, but also, as Mr. Deieso said, for the public confidence that it will provide in the assurance that these systems are, indeed, safe.

A few weeks ago the Environmental Protection Agency announced its intention to regulate air emission through resource recovery facilities under Section 111 of the Clean Air Act. The Institute of Resource Recovery supports that approach because that system will provide a significant margin of environmental safety, while at the same time that section will reflect variations in the combustion processes and in the composition of municipal solid waste.

Our third and final point is that the IRR believes that the issue here is not whether to regulate resource recovery, but how to do it so that waste to energy remains a viable and safe alternative for a community's waste management system. For example, the IRR would support legislation that would require EQP to promulgate the appropriate standards that it has proposed, but to do so on a timely basis.

We would also encourage Congress to consider requiring that EPA study options for material substitution such that it would keep potentially dangerous pollutants out of short-lived consumer products, and consequently out of the way stream.

We are aware that there are a number of legislative initiatives affecting waste energy under consideration in the Congress right now. From what we hear we are concerned that several of them will increase exponentially the requirements on waste to energy facilities without producing comparable environmental benefits.

We'd like to work with you and the members of this committee to offer our technical expertise to help develop legislation that maximizes a community's ability to utilize resource recovery in disposal of its solid waste, and to do so in the knowledge that the technology is safe.

We are prepared to answer any questions that you may have.

Senator **Breaux**. Thank you, Ms. Prindiville.

Mr. Flaherty.

STATEMENT OF JAY FLAHERTY, DEPUTY MAYOR, CITY OF PHILADELPHIA, PHILADELPHIA, PA, ACCOMPANIED BY CHARLES MARTIN, EXECUTIVE DIRECTOR, BATH BRUNSWICK, MAINE, REFUSE DISPOSAL DISTRICT

Mr. **Flaherty**. My name is Jay Flaherty. I am the Deputy Mayor of the City of Philadelphia. I am testifying here this evening on behalf of the United States Conference of Mayors, which represents over 800 cities nationally. I am accompanied by Mr. Charles Martin, who is the Executive Director of the Bath Brunswick, Maine, Refuse Disposal District, who has a few brief remarks to make after me.

I have submitted for the record some written comments dealing with the proposed legislation. I would like to comment very briefly, if I might, though, on the magnitude of the problem facing us in the cities in terms of dealing and disposing with our solid waste, and also on the role of this legislation to help us deal with the problem.

As the deputy mayor of Philadelphia I have been assigned by Mayor W. Wilson Goode with the responsibility for overseeing the development of a solid waste disposal policy in the city. A specific part of this project is the development of a resource recovery project at the Philadelphia Navy Yard.

The reason the city is embarking on this project is that a tremendous trash crisis faces the City of Philadelphia, prompted primarily by the closing of landfills in Pennsylvania and in adjoining localities. We've also found that with the closing of the landfills, environmental concerns have mounted, and landfills are not being permitted in the Commonwealth of Pennsylvania. That, accompanied by the "not-in-my-backyard" syndrome has made it extremely difficult for us to dispose of our waste.

The costs right now to the City of Philadelphia are staggering. In fact, in the last five years our solid waste disposal costs have tripled, which now means that today, in our fiscal year 1988, we are spending more on trash disposal than we are, in the City of Philadelphia, for recreation centers, libraries, and our City park system combined. That is a cost which is causing our municipal budget to hemorrhage.

In addition, because of the requirements that we have to haul our waste to landfills far distant from the city we now are in the long-haul trucking business and have one of the largest fleets of long-haul vehicles in Eastern Pennsylvania.

Our response to the crisis which we are facing has been to, basically, buy space in the spot market in landfills; to buy it and, of course, subject ourself to the dramatic increase in spot market prices.

On a longer-term basis we have developed a three-pronged approach, which consists of recycling, we hope, by 1991 the 15, 20, 25 percent of our waste—something of that magnitude—will be able to be recycled. We would hope, on the basis of a project pending before our City Council, that 70 percent of the waste can be handled through a resource recovery project. Obviously, the third component is: we will have to use landfill capacity.

With that as a background, let me very briefly comment on the legislation. We do applaud the Federal interest in this area because we view the Clean Air Act and possible amendments to it as a vehicle to provide a consistent and a national set of emissions standards and enforcement mechanisms. In effect, we are looking to help us get a level playing field, if you will, in dealing with the problem.

I should say—and I think that the first speak on the panel referred to this in the State of New Jersey—in the absence of clear standards today, we have developed our own set of acceptable emission levels and enforcement mechanisms through contracts and local ordinance. That, certainly, is a possibility, but I will say that it has been a torture process in dealing with all of the interest groups that are affected, whether it be the vendors, or the environmentalists, or neighborhood groups, et cetera.

Our concern, though, in dealing with the Clean Air Act is that it be workable. We really do think it's important that the standards which may be imposed be achievable. Just by way of example I would note that several years ago we were required to introduce tertiary treatment into our waste water treatment plants, only to find out that the technology of tertiary treatment was not there; so, in effect, we've had to play catch up, which has been very expensive for us.

My final point, if I might, is that while we believe that there are three parts to the solid waste disposal puzzle, if you take away or affectively limit the effectiveness of any one of the parts, to wit, resource recovery, you put tremendous pressure on the recycling component and the landfill component. I think the present state of affairs is such that pressure on a landfill component will continue to drive the prices up, and I think that the reality is that recycling, even in the best of circumstances, may not exceed 25 percent.

I would like now to refer to Mr. Martin, if I might, sir.

Mr. **Martin**. Thank you, Mr. Chairman.

I am here today because I am a member of a waste to energy project that's being developed in the State of Maine. I represent a refuse disposal district that involves 15 municipalities, so I'm a person who's working in the field trying to put one of these projects together. I'm also a member of the executive committee of the National Resource Recover Association that's working in this field also.

I would just like to add that whatever Jay has said here about the problems in Philadelphia, the same kind of problems face us in the State of Maine and throughout the Northeast. We have very difficult problems getting rid of our trash, mainly because landfills are filling up much more rapidly than most anybody expected; and secondly because our State Environmental Agency is closing down landfills because many of them are polluting the groundwater.

Of course, it's difficult to site new landfills anywhere, but especially in our State because we depend on the groundwater for drinking water, so we have turned to resource recovery as the solution to the solid waste problem in our state.

Before any plants are licensed in Maine they go through a very lengthy environmental review to get their permits. Right now in our state we have a 200-ton per day plant operating in Auburn since 1980, we have an 800-ton per day plan that's just completed construction and about to go—is in its testing period in Bitterford. We have a 500-ton per day plant under construction in Portland; another 700-ton per day plant under construction in the Bangor area; and I'm head of a project that will be a 150-tons per day plant that will sell steam to Bath Iron Works Corporation during the Winter months, and electricity to the power company during the Summertime. So, as you can see, in our State resources recovery is the solution to the crisis that's facing us.

I just want to make the point that all of these plants have been licensed as environmentally safe long-term solutions to our problem.

I came here today, and in preparation for our testimony I was given a chance to look at various draft proposals and draft pieces of legislation. I'm not really sure which ones are being seriously considered, but some of the things I saw would have a very detrimental effect on projects like ours and others throughout the country, and we have noted those in the formal testimony that's been handed in.

I would just like to assure you that as a representative of local governments, people working in the field, the local mayors and selectmen, believe in waste to energy as the way to go, and that I would like to offer our cooperation with the committee to work with you in the development of any language that may be considered.

Thank you.

Senator **Breaux**. Thank you very much.

We'll next hear from our final witness on the panel, Dr. Ellen—pronounce that for me please, ma'am.

Ms. **Silbergeld**. Silbergeld.

Senator **Chafee**. Before we start that, Mr. Chairman, I know that Senator Mitchell was very anxious to personally greet you, Mr. Martin, officially from here, and he's tied up, so may not be back. But on behalf of Senator Mitchell I want to welcome you and say how glad we are that you came down from Maine.

I'm a property-owner in Maine, so I'm very glad, also, to see you. You're not my tax assessor, I don't have to go out of my way——

Senator **Breaux**. And I know where Maine is, so we welcome you, too.

Doctor—would you pronounce it again? I didn't catch your last name pronunciation again. Silbergeld?

Ms. **Silbergeld**. Silbergeld. Yes, sir.

Senator **Breaux**. Thank you. Glad to have you.

STATEMENT OF ELLEN SILBERGELD, CHAIRMAN, TOXIC CHEMICALS PROGRAM, ENVIRONMENTAL DEFENSE FUND, WASHINGTON, DC

Ms. **Silbergeld**. Thank you very much. We submit our full testimony for the record.

Very briefly: we support the interest and concern of the committee to ensure comprehensive waste management and, in fact, the rescue of municipal solid waste incineration from this regulatory black hole of neglect which is threatening to trap the light which may be contributed by municipal solid waste incineration to sound waste management, and also threatening to trap protection afforded by rational, consistent regulation of what is a new and major source of air toxics. So, in fact, these two subjects are very closely linked.

I would like to say, however, that I'm a little dismayed by some of the testimony preceding me. My training is in sanitary engineering and in public health. I was taught that engineering serves the public health and does not sacrifice it. What I hear too often is a disregard for the public health impacts of what appears to be a highly attractive technology, that raises very real questions as to whether municipal authorities, anxious to get rid of perceived short-term crises in solid waste management, are really the best people to determine what, in fact, are the soundest and most protective methods for that waste management.

In our testimony we discuss the health and environmental effects which can be expected to be associated with incineration of solid waste, feasible and rational technological controls for this technology, and the integration of health-based standards with the technology-based approaches which have been proposed through legislation in the House and are being discussed in the Senate.

I would like to leave you, however, with two very important concepts which have guided our work in this area. First is that we need a comprehensive approach to waste management. We must recognize that incineration is a processing, not a disposal methodology. It will not supplant landfills, it will require landfills. The residues which must be disposed of from incinerators may, in fact, augment the problems which have been encountered at sanitary landfills around the country. One need only look at the Auburn Ash Disposal Site in the State of Maine to get some understanding of that problem. In fact, last week I was visited by a government official from Austria who informed me that in the opinion of the Government of Austria, disposal of ash wrecked the groundwater of his country.

We also urge you to consider comprehensive management of the risks associated with waste management involving incineration, which includes the controls we are discussing on air emissions, as well as concern over ash. It does no good, in fact, to transfer the risks from the stack to the hopper, if you will, from the air to uncontrolled dumping and lack of management of the solid ash residues taken from the stacks by the most advanced air pollution control methods.

We also urge you to incorporate in your consideration a control technology, not only of the emission controls and ash management stipulated, the monitoring and operating conditions outlined, but also such techniques of selection of waste to be burned, a comprehensive attack on this problem which Ms. Prindiville and others have alluded to, because these are, in fact, some of the most efficient and rational approaches to dealing with these risks.

We, therefore, suggest that as embodied in legislation you pay very careful attention to mandating emissions controls and monitoring for the substances listed; that you require comprehensive and health-based ash testing, and treatment of ash residues which are appropriate to the results of those tests; that you mandate source separation, recycling, and comprehensive waste management similar to those undertaken in the State of New Jersey in order to achieve efficient regulation of these risks; and, finally, that you examine the contents of products, themselves—for instance, the use of toxic metals in many of our products—as the most efficient manner to handle this risk at the outset.

I'd like to allude a little bit to the health-based standards we've proposed, since they were discussed by the first witness here. We have suggested that a way to incorporate some of the most reasonable and exciting advances in environmental science, immunology, and other fields of medicine—and I come to you, actually, from Woods Hole today from a meeting of the National Academy of Sciences on this and other subjects—is to look at exposure in people: that is, to set controls in order to prevent the incremental risks from two of the cardinal pollutants emitted by this source incinerators, lead and dioxin, from increasing above a level which, by consensus, medical researchers have found to be associated with comprehensive health risks, not merely with cancer.

I think that should leave us with a view that municipal solid waste incineration does, in fact, pose real health threats. For instance, the Clean Air Science Advisory Committee of the EPA, on which I serve, has identified as probably the most significant current point source for lead in the American environment municipal waste incinerators. EPA, itself, in hearings before the House admitted that an incinerator could, in fact, put into the air environment up to 60 percent of the current national ambient air quality standard for lead. You should know that that air quality standard is egregiously offensive to public health and will, in fact, be lowered. It does not protect public health from lead poisoning.

The Philadelphia Northwest incinerator has been identified by EPA as a very high emitter of very toxic dioxins associated with very substantial risks to reproduction, as well as to the likelihood of cancer.

And, finally, we'd like to speak to the issue of offsets, which have been suggested in the proposed legislation. We would urge you to take very careful note of this proposal. Incinerators will be a major source of acid gas emissions, and you should consider any lack of vigilance over this source as they take hold—the 200 or so new incinerators proposed to be built.

We also suggest that the offset provisions can, in fact, be used in a sensible and rational way to guide siting decisions.

Waste management, fortunately, is becoming more and more of a regional, rather than a local, decision. It may, in fact, be the case that there are certain sites, because of problems with attainment, as well as impositions on public health, that these sites are not the best place to put an incinerator. I would not think that Philadelphia, with its very high rate of childhood lead poisoning, is a place to lightly establish a new source of lead in the environment. This does not have to be a prevention or a block to the sound use of incineration in comprehensive waste management. We suggest that it can, in fact, enhance rational planning and deployment of this technology when it can, in fact, assist us and can protect public health at the same time.

Thank you.

Senator BREAUX. Thank you very much to all the members of the panel.

I recognize Senator Chafee first for questioning.

Senator CHAFEE. I think that this has been very good testimony this evening. We've really got a problem, as was outlined by Mr. Flaherty and others here. We all see it, and we all see this "not in my backyard" problem, but what do we do?

I was particularly intrigued by Ms. Prindiville's testimony and also Dr. Silbergeld, which was this comprehensive approach. That, as Ms. Prindiville outlines on page 2 of her testimony, involves first of all the recycling, and then doing something about eliminating these highly toxic materials from the chain, themselves. One of the witnesses pointed out that it's already been done with PCB's and DDT and some other things. I really think that we've got to look at this whole approach and somehow reward recycling, or encourage it.

I don't know how we'd do it, but I don't think it's enough to say that Philadelphia just can't have incinerators. They've got this stuff piling up. I was interested at the statistics, which I have no reason to quarrel with, that each person in the United States is directly responsible for the generation of a ton of waste a year. I believe it. You just drive down any street and you know that houses only have perhaps a couple of people in them, you see the weekly trash outside, and you multiply that by 52, and then occurring all over the Nation.

So I endorse that comprehensive approach that has been suggested.

Then we get the problem that Ms. Silbergeld raises on page 13 where EDF has estimated that currently-operating U.S. resource recovery incinerators are loading the environment with twice as much lead per year as is emitted by all the leaded gasoline used in the country. So we're eliminating leaded gas here, and having the adverse effects of lead in the atmosphere in the environment occurring elsewhere.

Just one question. I'll direct it to Ms. Silbergeld. Who has done this right? You mentioned Austria—they've got trouble with their ash. How about those thrifty, canny Swiss? How are they doing in this?

Ms. **Silbergeld**. Well, the thrifty, canny Swiss are the people who've done some of the most substantial investigations of the hazards of air emissions and ash residues, and have major concerns.

I think the people, from my knowledge, sir, who've done it the best are, in fact, the Norwegians, because they looked at the issue comprehensively, and they identified some of the major problems as acid gasses, and metals, and dioxins. They insured very stringent operating conditions to deal with the combustibility issue—that is: of incompletely combusted organics coming through, and products of incomplete combustion, like dioxins.

They put through a rather vigorous offset program where they—for instance, in the City of Hindow, near Tronthime, they shut down two major sources of acid gasses before they permitted the incinerator to start operating, and most interestingly—and in line with what you've been saying, sir—they examined their products stream for metals which, of course, are incombustible and, therefore, cannot be handled, and they mandated the removal of many of the uses of cadmium and lead from commercial products before they permitted a single incinerator.

Senator **Chafee**. Okay. Well, I want to thank you. Mr. Chairman, I just think as we get into this thing we're going to have another evening mark-up. I just hope we can look, and the staffs will weigh carefully this testimony and consider this comprehensive approach that's been suggested. In our State we're just starting. Perhaps New Jersey has done better. I didn't hear your testimony. Regretfully I didn't hear that. But I look forward to looking it over.

Thank you very much. And I want to thank you, Mr. Chairman, for letting me go first.

Senator **Breaux**. Certainly.

Senator Lautenberg.

Senator **Lautenberg**. Thank you very much, Mr. Chairman. I want to welcome my fellow-citizen from the State of New Jersey.

Mr. **Deieso**. Very good to see you again.

Senator **Lautenberg**. Dr. Deieso. His testimony is always helpful and we're pleased to be here. I'm sorry I wasn't here to hear it.

All of us are looking for the magic solution to getting rid of trash and waste. It's disappointing, but sobering. Dr. Silbergeld, your testimony, says, if you're going to do it, you'd better do it right or you'll not have helped yourself; as a matter of fact you'll have made things worse.

By the way, I've got to question your judgment about one thing. You left Woods Hole today to come here?

Ms. **SILBERGELD**. [Nodding head yes.]

Senator **LAUTENBERG**. Anybody that's been to Woods Hole knows that you're probably better off there.

Senator **GRAHAM**. Strike the word "probably."

Senator **LAUTENBERG**. "Probably." You've been to Woods Hole, too.

The thing that I want to be certain of is that you are not saying that incineration is an inappropriate way to deal with it? You're saying that if you have all of the rules in place, and if you have all of the operating standards in place, than it's an acceptable way? Or is it impossible to have the appropriate kind of controls because a lot of states around the country are betting their bottom dollar on the fact that incineration is a safe and reasonable costed way to get rid of this stuff.

Ms. **SILBERGELD**. Well, sir, I think as long as that's what people expect they're going to be seriously disappointed, and there's going to be a very big bill to pay at the end of this whole story because incineration is not a way to get rid of trash. Incineration is a processing, if you will compacting process, which reduces the volume of the trash you have to get rid of.

Senator **LAUTENBERG**. That counts for something.

Ms. **SILBERGELD**. When I hear my colleagues here talk about replacing landfills I have to worry, because they're not going to replace landfills. They're going to have to deal with a tremendous burden of solid residues from these incinerators, and the burden will be proportionately worse to deal with the more vigorous you are at protecting the air.

Now, you wouldn't consider that we should clean up ash by throwing more toxins into the air, but essentially what they're asking you to buy into is clean up the air—okay, we'll buy into most of that—but let us dispose of the ash any way we want to.

Senator **LAUTENBERG**. I'd like to hear from one of those who talked to the value of the process, and I think we are arguing, perhaps, relatively small word differences. If compaction is, in fact, the result, we haven't got rid of landfill sites, we've substantially reduced the need. Whether we can compretize the ash and store it in some way that's one-tenth, one-twentieth, one-hundredth of what we have, and can do it safely, we've gained substantially on the problem.

I live in a State, as you know, that would suffer greatly if Philadelphia goes ahead and builds its incinerators and is careless about the emission, because it dumps on New Jersey, and for too long New Jersey's been dumped upon; we don't like it any more.

But there is some value, is there not, considering the process as one that can be effectively employed?

Ms. **SILBERGELD**. We think there is, and that's why we've been very careful to approach this issue in a way in which we can construct what we think are feasible controls, including the health-based proposals you will note are not structured to prevent any incineration. I do believe that there may, in fact, be considerable benefits to incorporating incineration and a comprehensive management of trash. But, again, Senator, you live in a State which has been plagued by secondary smelter, such as the one in Carderock, which have had major impacts on the health of your citizens.

From the perspective of a toxicologist, like myself, who spent a long time dealing with metals, very frankly incinerators are really secondary smelters, and I think we have to approach their likely health impacts, and the management of those impacts, which are extremely difficult to do, with the same vigilance we've learned from sorry experience in cities like Carderock.

Senator **Lautenberg**. Dr. Deieso, do you take Dr. Silbergeld's view and go along with the fact that if it's not done perfectly that it's not of value?

Mr. **Deieso**. Senator, we, too, subscribe—and I suspect every State does—do a comprehensive program. If we state the principles, and I think they're elegantly simple, there's three facets to solid waste management today. The first is recycling. The State of New Jersey has a mandatory rule for 25 percent. We look forward, perhaps, to the next decade of maybe 30, 40, and even 50 percent recycling. But the first fact to emphasize, it's inescapable, there is no total recycling, and despite the best efforts we're technology limited. We will always have a fraction that must be disposed of in another way.

The second piece of a good solid waste management comprehensive program is going to be resource recovery. In that facility we reduce volume by 90 percent. With all due respect to my panelist's statement, we have that material undergo a chemical and physical transformation. It's not simply condensing and leaving the toxins behind; these materials undergo change. They undergo a change in a way—just fuel in your furnace or gasoline in an engine, we burn it, leaving the materials converted to some other form.

Once reduced by 90 percent the third piece comes into play, and that's a landfill, a landfill that would receive the ash, ash that's been reduced nine to one.

Senator, you were quite right to note that a landfill's life can be extended ten-fold with the use of a resource recovery, and in some of our highly-dense portions of our state, and many other portions of the country, this is a necessity.

Now, we do not look the other way to environmental control and resource recovery. There are control techniques, there are stringencies that can be imposed and are imposed, and ash can be properly handled, too. There are control measures in design of a landfill to see that the ground water isn't contaminated. In many cases we face illusion; the illusion is that resource recovery emits dioxin and is poisoning people. We face the illusion that if ash is disposed in the ground that ground water will automatically be contaminated, and that's simply not true. There are engineering ways to see that that doesn't happen.

Senator **Lautenberg**. Thank you. My time's up.

Senator **Breaux**. Senator Graham.

Senator **Graham**. Thank you, Mr. Chairman.

I apologize that I was unable to hear most of the testimony. Mr. Deieso, I'd like to ask you a question, and then if anyone would like to comment. I am going to ask a public administration question: what is the appropriate Federal role? It seems to me that the basic premise of the Clean Air Act has been for the Federal Government to set standards and then look to the States to develop the tactics to meet those standards. We're debating whether that basic structure continues to be an appropriate way to approach this problem. But we seem to have an exception to that rule that I've just stated is where you're dealing with a product such as an automobile or a truck that moves interstate commerce, and where there is the necessity of having more-detailed Federal control in response to the mobility of the product.

Here was have a facility, which is site-specific, although like many other things what it produces may be blown around. The question I have is: what is the rationale for carving this particular type of facility out and treating it as under specific Federal standards as distinct from other facilities that emit—or potentially could emit—pollutants into the air?

Mr. **Deieso**. Senator, your assessment of the Clean Air Act and the Federal and State role is absolutely correct. The one piece I'd like to augment and suggest that it isn't uncommon—in fact, it was envisioned in the Clean Air Act to have the Federal Government set standards for new sources. In fact today the Federal Government has set standards for new powerplants, for smelters, for acid production, and incinerators. So this would continue, we think, a valuable tradition, and that tradition being that the Federal Government can assure, in setting minimum guidelines, that that facility in any state will comply with the same rules.

Now, there are several benefits to that approach. One, and certainly not only, is that it would discourage interstate economic advantage so one facility in New Jersey faced with stringent air pollution regulations simply couldn't run across the river to Pennsylvania and enjoy less stringencies there.

The second, and probably most important in the case of our resource recovery facilities, it sets a national tone. It sets a tone that suggests that the technology is viable, that the Federal Government has set very stringent control measures, and those serve as guidelines to each of the states. If a state chooses to be more stringent and the technology supports that additional stringency, well, then, that's something that we would applaud. But at the very least the Federal Government needs to set the baseline from which all states can proceed, and, most importantly, manufacturers and vendors at these facilities know that there is at least a baseline with which they must comply.

Senator **Graham**. Thank you.

Senator **Breaux**. Let me ask just a couple of questions. Dr. Deieso and Ms. Prindiville, I'm trying to figure out whether you all think new legislation is needed or not. Mr. Flaherty, I take it that you're saying we should be regulating these emissions from incinerators under the existing Clean Air Act, section 111.

Mr. Deieso, you're saying in your statement that legislation for control of air contaminant emissions from waste incineration is appropriate and timely. Ms. Prindiville, you seem to be saying, "I'm not sure." You said that we believe State permits, with appropriate guidance from EPA, is an appropriate vehicle for setting these standards. I'd like some comment. Am I interpreting what you're saying correctly? Mr. Flaherty.

Mr. FLAHERTY. Yes, sir, you are. I think one of the things that has to be borne in mind here is the mosaic of regulatory environments which the vendors are facing. Speaking on behalf of the City of Philadelphia we—as Senator Lautenberg noted, what happened at Philadelphia affects New Jersey in terms of a normal air stream. It could also affect the State of Delaware—there's sort of the tri-state area there—so we get into all sorts of complicated problems about what the appropriate regulatory environment ought to be, and that is a unique problem at Philadelphia. I suspect that are other cities around the country would have that.

Senator BREAUX. What I'm saying is: from your perspective, representing the Conference of Mayors, you're saying we don't need new legislation, or we do?

Mr. FLAHERTY. No. I'm saying, sir, that we believe we do need new legislation in order to provide, essentially, a baseline from which to work, or a set of standards that are applicable around the country.

Senator BREAUX. Is the Clean Air Act not able to do that, or is not doing that?

Mr. FLAHERTY. I believe that it could be fine-tuned to deal with—really, in some ways, deal with the advancing technology in some of the testing mechanisms that are coming on-stream. We're able now, the engineers tell us, to find one part per trillion, or even higher, and that is as opposed to one part per million and one part per billion. So I think you've got to deal with the advancing technology in some way.

Senator BREAUX. Ms. Prindiville, do we need it or not?

Ms. PRINDIVILLE. Senator, we believe that section 111 of the Clean Air Act is currently sufficient to allow the creation of the standards that will regulate resource recovery facilities, and that, indeed, a few weeks ago—on the second of July, to be exact—EPA proposed to use section 111 to accomplish exactly that end. I think national legislation would, in fact, establish the national goal of that kind of protection, and perhaps direct EPA to set those standards as they have proposed to do, but to do so on a more timely basis. Their current time table would take us out to about 1991, I believe, before we would have those standards in place.

So what we are suggesting is that while the Clean Air Act is, itself, adequate, EPA could use direction from you in reinforcing its intent to act.

Senator BREAUX. Seems like they get active about every time we schedule hearings.

Mr. DEIESO. And we are grateful for those scheduled hearings.

Senator BREAUX. Dr. Silbergeld, let me ask you: you have an extensive statement. I haven't had the time to look at it all. It's a lot of very good work. One of the things I noticed: on page 37 you had talked about one of the provisions in our working paper would exempt new incinerators in nonattainment areas from some of the mandates that are otherwise imposed on the nonattainment areas. You said it's irrational. I don't understand it either, but I guess what the working draft says that if you build a new incinerator you could do it to a less high standard than the old incinerators would have to make?

Ms. SILBERGELD. It might have that impact, but more seriously it would encourage continued problems in attaining health-based protections from major air pollutants in heavily impacted areas. Unfortunately, these may be the areas where incinerators are most likely to be constructed, such as New York City.

We would suggest that, first off, meeting the proposed offset requirements—that is, of reducing existing problems which are contributing to the non-attainment issue in a particular locale—is not impossible. Again, it's not going to throw up an irreversible roadblock to the deployment of incineration when this is feasible and appropriate, and we have some data from New York City, for example, which I know Senator Moynihan is concerned about, showing that there is ample room for achieving the offset in order to build the five proposed incinerators should they, in fact, turn out to be useful things to build.

Second, we would suggest that the attainment issue, both in terms of attaining air standards, and what we consider the more serious issue, attaining prevention of public health, which we propose through our monitoring of lead and dioxins, that attainment could, itself, be used to guide siting.

As you've heard from a number of speakers here, waste management is, at last, becoming more of a regional planning concept rather than each city fighting it out with each other, which is devoutly to be hoped to happen quickly. And, in fact, non-attainment, either from air quality of public health considerations should—and could be—factored in as one of the ways we make these siting decisions, and could be very reasonable.

If I might, sir, I'd like to speak to why we support legislation in this area, and that is that there's nothing in the Clean Air Act which will encourage the kind of comprehensive waste management which a number of you have spoken to, and which a number of us recognize as the way to go in managing solid waste in a protective and efficient and economic fashion. We consider the kinds of language that you're discussing to go a long way towards an innovative way of capturing and dealing with this problem. It also, of course, would not deal with the issue which we greatly fear, that the hazards will be transferred from air to the ash residues. We urge you to take serious consideration of language in the House which would, in fact, not only comprehensively manage the problem of waste, but manage the risks engendered by a processing technology.

Senator BREAUX. Well, I want to thank, on behalf of our Chairman, Senator Mitchell, all of you. I think your testimony has been very helpful, and we will be reviewing it, in addition.

With that this will end this session of the subcommittee, and, under the previous order that Senator Mitchell spelled out, the committee will be in recess until the call of the Chair.

[Whereupon, at 8:22 p.m., the subcommittee adjourned subject to call of the Chair.]

[Statements submitted for the record follow:]

STATEMENT OF

EARL ARP

ON BEHALF OF THE

AMERICAN PETROLEUM INSTITUTE

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

U.S. SENATE

ON

THE HAZARDOUS AND TOXIC POLLUTANT

PROVISIONS OF TITLE V

WASHINGTON, D.C.
JULY 21, 1987

TESTIMONY OF
THE AMERICAN PETROLEUM INSTITUTE
ON THE HAZARDOUS AND TOXIC POLLUTANT
PROVISIONS OF TITLE V
OF THE COMMITTEE WORKING PAPER

JULY 23, 1987

Good evening Mr. Chairman and members of the Committee. My name is Earl Arp. I am Director of Corporate Health and Safety for the Ashland Oil Company. I am here this evening on behalf of the American Petroleum Institute to present our views on Title V of the Committee Working Paper.

API is a national trade association representing over 200 companies and 5000 individual members. API's members are engaged in all aspects of the petroleum industry including exploration, production, refining, transportation and marketing.

We are here today to discuss the hazardous and toxic air pollutant provisions appearing in Title V of the Committee Working Paper. Title V was introduced as S.1384. API's position is that the regulatory approach embodied in the bill is ill-conceived and ultimately will defeat the vital public health objectives all of us share. Unchecked, the zero risk philosophy which drives a zero emissions policy, as expressed in this bill, would ultimately lead to a shutdown of many industries in this country. The crucial shortcomings of Title V are the following:

- Title V reflects an oversimplification of the concept of toxicity. It ignores the established scientific fact that chemical risk is dictated by the toxic potential of the chemical and the rate and duration of exposure.

- Title V embodies a zero-risk philosophy which should be rejected because it fails to differentiate between major and insignificant risks. It would force indiscriminate use of finite public health resources to control any risk, whether small or virtually non-existent, and thereby limits our ability to address serious public health hazards.
- Title V attempts to implement this unsound policy through wasteful programs of over-regulation which involve cycles of dismantling or retrofitting all existing controls in order to achieve ever smaller increments of protection against increasingly uncertain risks of harm.
- Although no foundation has been laid for concluding that EPA's current approach is structurally flawed, Title V completely supplants it with an entirely new program which introduces vague and controversial new criteria, disrupts the existing scheme under Title I of the Clean Air Act, and duplicates programs under other statutes. Thus, Title V will create a fertile new source of bureaucratic confusion, needless duplication, litigation, and delay.

We do not mean to suggest the Agency's current program under Section 112 cannot be improved. The way to proceed, however, is to begin with a thorough examination of the present EPA program including identification of its specific shortcomings and their ramifications. This should be followed by a fair diagnosis of the root causes of any failings that are identified. There is no indication that such a systematic analysis been done to date.

Moreover, even if it can be established that the current program in its present and projected implementation is inadequate, Title V, as we will demonstrate, will provide no cure; it will only create new and more serious ills.

SUMMARY OF TITLE V

With regard to the regulation of hazardous and toxic air pollutants, Title V appears to contemplate a phased program of regulation involving increasingly stringent controls and leading to an outright emissions ban for the many pollutants that may be deemed "hazardous" under the bill. As we read the bill, the new program would work as follows:

The first phase, contained in paragraph (d) of Section 112 as proposed in the bill, would be the imposition of what the bill calls "best available control technology"" (BACT) on any "major source" for over 300 chemicals defined as toxic pollutants by this bill. Given the virtually all-inclusive definition of "major source"[1] and the large number of pollutants covered,[2] few economically significant industrial facilities will escape this requirement, regardless of how little risk their emissions pose to the public health. What is worse, the term BACT is a misnomer. As defined in the bill, it really means a level of control comparable to, or more stringent than, the "lowest achievable emission rate" (LAER) as used in the current Clean Air Act.

The next two phases of the program would apply to "hazardous" pollutants addressed in the proposed revisions to

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[1] Section 112(a)(4), as proposed in S.1384 Section 502

[2] Section 112(d)(1)(A), as proposed in S.1384 Section 502

Section 112. Under the expansive definition of "hazardous" as used in this bill, it is altogether possible that many, perhaps a majority, of the more than 300 "toxic" pollutants will ultimately be reclassified as "hazardous". This is so both because the definition of "hazardous" encompasses pollutants which may present more than a negligible risk of adverse health effects, and because entirely new and potentially very broad environmental damage criteria have been added to the definition and the listing criteria.[3]

Under the bill, all sources of emissions above the "de minimis" level of a listed pollutant would be subject to standards "set at a level at which no known or anticipated effect" on the "health of persons" occurs, "including an ample margin of safety."[4] Feasibility, costs, economic, energy, or "other" considerations are ruled out in setting the standards, so that complete emissions bans are apparently contemplated. A ten-year deferral of these bans would be available in cases of "extraordinary economic hardship", but only if, in the interim, the source applied BACT and complied with an alternative emission limitation which protects "the maximum exposed persons" from risks which are deemed to be no more than non-"negligible" risks.[5]The final phase, which kicks-in ten years later, would apparently be a complete emissions ban.

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[3] Section 112(b)(1) & (c)(1)(A), as proposed in S.1384 Section 502

[4] Section 112(c)(1)(E), as proposed in S.1384 Section 502

[5] Section 112(c)(3)(A)(ii)(II), as proposed in S.1384 Section 502

In addition, the bill requires that nineteen specific pollutants be regulated as "hazardous air pollutants," thus subjecting all non "de minimis" sources of these pollutants to eventual emissions prohibition. EPA recognized at the outset of its efforts that to implement the current Section 112 program with a zero-risk approach, if applied to just a subset of these nineteen pollutants, would mean the end of modern technological society as we know it. As EPA put it in 1979:

> A requirement that the risk from atmospheric carcinogen emissions be reduced to zero would produce massive social dislocations, given the pervasiveness of at least minimal levels of carcinogenic emissions in key American industries. Since few such industries could soon operate in compliance with zero-emission standards, closure would be the only legal alternative. Among the important activities affected would be the generation of electricity from either coal-burning or nuclear energy; the manufacturing of steel; the mining, smelting, or refining of virtually any mineral (e.g., copper, iron, lead, zinc, and limestone); the manufacture of synthetic organic chemicals; and the refining, storage, or dispensing of any petroleum product.[6]

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[6] EPA, proposed Airborne Carcinogen Policy, 44 Fed. Reg. 58642, 58660 (Oct. 1979).

EPA has recently reiterated this insight in defending its Section 112 program.[7] The Agency has further found that the dislocations caused by the zero risk philosophy would not be limited to the industrial sector. Carcinogenic radionuclides are emitted by minerals, soils and even human beings.[8] Hence plowing a field would pose a risk subject to controls under Title V as proposed. Similarly polycyclic organic matter is emitted curing any combustin process. Under the broad scope of Title V any activity involving combustion including residential stoves and fireplaces, etc. would be subject to the same stfingent controls faced by industry. [9]

THE ZERO EMISSIONS PHILOSOPHY UNDERLYING THE PROVISIONS OF THE BILL

The essential difficulty with the bill is the unsound and self-defeating public policy regarding elimination of all risk which the bill proposes to implement. Section 112 of the Clean Air Act(CAA) states that goal of regulation is to protect "the public health" from exposure to airborne toxics. However, the proposed legislation which we have before us today incorporates a major policy change. No longer would the goal be protection of the public health from the adverse effects of hazardous pollutants, but it would become the protection of the most exposed persons. As the EPA finding quoted above illustrates, the implications of this policy change for a technological society such as ours are staggering.

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[7] Brief of Respondent EPA, filed on April 13 rehearing en banc of NRDC v. EPA ("vinyl chloride"), 804 F.2d 710 (D.C. Cir. 1986), rehearing en banc April 29, 1987, at 5 - 6.

[8] 49 Fed. Reg. 43, 911 (Oct. 31, 1984)

[9] 49 Fed. Reg. 31, 680 (Aug. 8, 1984).

It is by now well recognized throughout the regulatory community that a policy which attempts to protect each and every individual from any and all risk, no matter how small or uncertain the risk, has the potential to undermine the public health. If finite resources are wasted in an effort to reduce trivial or non-existent risks, far more serious hazards may go unaddressed. Federal regulatory agencies (including EPA),[10] research organizations (such as the National Academy of Sciences) [11] and the courts all have recognized this principle.[12] Congress also has embraced this approach on many occasions, including during the legislative debate leading to the 1977 Amendments to the Clean Air Act. The 95th Congress acknowledged that even for criteria pollutants regulated under Section 109 of the Act, "the safe threshold" concept is, at best,

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[10] EPA, Interim Procedures and Guidelines for Health Risk and Economic Impact Assessment of Suspected Carcinogens, 41 Fed. Reg. 21402 (May 25, 1976).

[11] National Academy of Sciences, I. Drinking Water and Health, at 12, 56 (1977).

[12] Industrial Union Dep't, AFL-CIO v. Amer. Petrol. Inst., 448 U.S. 607, 642, 645 (1980).

"a necessary myth" because the "limitations of present knowledge" make it "impossible" to find a concentration "for any pollutant -- other than zero -- below which it is certain that no human beings will be adversely affected." [13]Nevertheless, the 95th Congress refused to endorse the kind of extreme approach reflected in Title V:

> Some have suggested that since the standards are to protect against all known or anticipated effects and since no safe thresholds can be established, the ambient standards should be set at zero or background levels. Obviously, this no-risk philosophy ignores all economic and social consequences and is impractical.[14]

A few examples will elucidate the public health importance of this decade-old Congressional wisdom. Most cities chlorinate their public water supplies as a way of protecting the public health from such high risks as exposure to cholera, typhus, typhoid, and other water-borne diseases. We all no doubt agree that this is an acceptable and worthy way of protecting the public health. However, a possible inadvertent side effect of chlorination can be the production of very low levels of carcinogens. And there are theoretically certain individuals in some localities who are therefore exposed to these carcinogens. While we might agree that it is desirable to seek alternatives to chlorination which may avoid this particular risk, none of us would suggest that we stop chlorinating our public water supplies until a perfectly "safe" alternative is found.

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[13] H.R. Rep. No. 294, 95th Cong., 1st Sess. 111, 112 (1977), reprinted in Senate Comm. on Environment and Public Works, Legislative History of the Clean Air Act, at 2578, 2579 (Comm. Print 1978) ("Leg. Hist").

[14] Ibid. 127 (4 Leg. Hist. 2594).

Another example of our longstanding policy of protecting the public health against major risks, even at the expense of causing small private risks, is our vaccination program. Most states require, and the federal government recommends, a regimen of vaccinations for children entering the public school system. This is designed to protect the public health from the spread of serious communicable diseases such as deptheria. Even as we require these shots, we know that a certain small percentage of children will have an adverse reaction. Because the public health is the larger goal, we continue the program and, of course thereby save thousands of children's lives each year.

Similarly, we could reduce or eliminate the risk of injuries or deaths on the highways by banning motor vehicle travel altogether. We could simply remove from the market any and all drugs and consumer products that present any risk of adverse side effects or injuries to individual users. And we could eliminate the generally small environmental and health risks posed by some pesticides by simply banning them. But Congress has recognized that the effects of such an approach on commerce, effective medicine, and the food supply would far outstrip whatever health, safety or environmental benefits might be gained. Accordingly, the National Traffic and Motor Vehicle Safety Act,[15] the Food,

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[15] 15 U.S.C. Sections 1391(1), 1392(f)(f).

Drug and Cosmetic Act,[16] the Consumer Product Safety Act,[17] and the Federal Insecticide, Fungicide and Rodenticide Act,[18] all contemplate that regulators will evaluate the degree of risk posed and the health, safety, environmental, economic and other trade-offs of imposing controls to reduce the risk.

A comparable balanced study is mandated by Section 6 of the Toxic Substances Control Act,[19] which was designed to address gaps in current regulatory programs. In our view, no one has made the case for abandoning the realism reflected in these programs and pursuing instead what the Supreme Court has called "the chimera of perfect safety."[20]

Then what does protecting the public mean? Unlike the simplistic goal of protecting the individual from exposure, protecting the public health is a complex concept. Much more than individual or population exposure enters into the equation. If a regulatory action will result in a severe economic dislocation, the consequences of that dislocation must be considered. As the U.S. Public Health Service points out, the single greatest threat to a person's health and the health of his family is loss of economic status.[21] This degradation of status can come about through loss of employment or by a rise in the cost of living through higher prices for essential products. These are not theoretical risks, as is often the case with hazardous air pollutants, whose effects at very low environmental concentrations are almost always unknown. Rather, the health and other hazards of unemployment and reduced economic status are real, countable risks based on actual human experience. When an agency's mandate is to protect the public health, many factors besides individual exposure must be weighed in the decision processes.

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[16] See Hess & Clark, Division of Rhodia, Inc. v. FDA, 495 F.2d 975, 993-94 (D.C. Cir. 1974).

[17] 15 U.S.C. Section 2088(c)(2)(A).

[18] 7 U.S.C. Section [136].

[19] 15 U.S.C. Section 2605.

[20] Industrial Union Dep't, AFL-CIO v. Amer. Petrol. Inst., 448 U.S. 607, 664 (1980) (Burger, C.J., concurring).

In short, to call for zero risk, as Title V does, is to misunderstand the nature of an industrial society. One of the compelling forces in our society has been the desire to understand and reduce risks. And we have been very successful, by and large, in fulfilling this goal. We live longer and are healthier than any of our ancestors; our span of productive years has been greatly expanded; and the majority of citizens of this country who are fortunate enough to reap the benefits of our technological society are free from the stresses of infection, disease and malnutrition. A reflection on these advantages will show that we have at times made decisions to replace large public risks with much smaller individual risks. The previously mentioned chlorination of water and vaccination are but two examples. Similarly, we have replaced the high risk of less effective food preservatives--salting and smoking--with much lower risk chemical preservatives. The examples are endless. The important point is that while we do and should continue to work to reduce risks and enhance our lifestyles, we must remember that all advancement involves some level of risk.

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[21] Mr. Herbert Hammond, USPHS, during a public seminar at the National Academy of Sciences, July, 1987.

When the drive for zero emissions causes us to see all chemicals in "measurable amounts" as insidious we begin to distort the realities and practical limits of our technological world. Efforts through risk assessment to deal with the fact that some risk is inherent in a highly technical, chemically-dependent society are abhorrent to some because they perceive it as a means of justifying the risk to exposed individuals. This is not the case, however. What risk assessment does is to acknowledge that our chosen lifestyle demands that we must live with low levels of risk. Risk assessment provides a means roughly quantifying the risks associated with population exposure to the by-products of our industrial society.

The risk assessment process allows us to assess and compare the degree of these risks and to prioritize our management to ensure that we locate and eliminate or control risks that threaten public health. Without an explicitly stated process such as risk assessment, we have no assurance that our efforts are either systematic or aimed at the right targets. In its absence, we risk randomized priority setting with attendant chaos, misallocation of available health protection resources and, therefore, significantly less risk reduction than we are capable of achieving.

It is necessary in a world as complex as ours to allocate the limited human, material and financial resources we have to address solutions to public health problems which will create the greatest improvement in the quality of our lives and reduce the greatest risks. Title V ignores the plain fact that some risks cannot be eliminated; that resources for this purpose are finite no matter how much we wish otherwise; and thus we have no choice but to prioritize our efforts as EPA's hazardous air pollutant program has attempted to do.

UNNECESSARY REGULATION

Apart from the fact that the zero emissions philosophy lying at the heart of the bill is futile and ultimately self-defeating, the specific emissions reduction program called for in Title V appears to go out of its way to impose unnecessary costs. There is a complex regulatory path which could require most emissions sources to retrofit or dismantle existing controls and replace them with stricter ones. Every five years when the Administrator is to update the definition of BACT, it appears from the language in the bill that sources would once again have to upgrade their equipment. The criterion the bill sets for determining the new emissions level is the availability of new technology. No consideration of what incremental health benefits the upgrading would achieve, or of the cost, is provided. We can think of no rational justification for this staged ratcheting-down of emissions in the absence of any data showing increased health or environmental benefits.

Even the first-phase "BACT" provisions of the bill are going to be questionable in most applications. For example, in the petroleum industry, which is singled out for comprehensive coverage in the BACT phase, the overwhelming majority of emissions are already subject to limitations under CAA Sections 109, 110, SIPs and Section 111 NSPS. Until a health basis is established for extending controls, the bill represents nothing more than regulation for regulation's sake. Under Title V the first phase BACT program would require even currently controlled facilities to retrofit stricter controls in order to achieve a small incremental reduction, say one or two percent, in emissions. It is well understood by the regulators and the regulated community that these additional reductions can be attained only at increasingly higher cost and will probably not have a measurable impact in improving our air quality.

Because we have already regulated the major sources, we are at the point now of spending large sums of money to effect relatively small changes in our air quality. Reducing the sulfur content to 0.05% in diesel fuel, which is included in an earlier title of this bill, will cost the petroleum industry $3.3 billion in capital outlays and $1.2 billion annually in additional operating costs and will reduce the total sulfur dioxide emissions in this country by less than 1%.[22] Although refueling emissions constitute only 2% of the nationwide VOC inventory and far less of the benzene inventory,[23] the average cost to each gasoline marketing facility to implement Stage II to control these emissions will be $20,000-25,000. This translates to a cost effectiveness figure of $2,400/ton. EPA estimates that if bakeries were to control their VOC emissions as suggested by this bill, the impact on the total environmental inventory would be 0.2% and would cost $204 million per year nationally. These are very large costs for very small reductions. We will not know if they are necessary expenditures unless we evaluate how much real health protection we are purchasing.

Moreover, the BACT provisions of Title V are only the first stage of the ratcheting-down process. For all non "de minimis" sources of the many pollutants that may be deemed "hazardous," there may be two subsequent cycles of replacing or upgrading of existing controls and reducing emissions even further, with cost-effectiveness declining at each step. Indeed, under the bill, the health benefits of these controls seem to be assumed.

But the existence of measurable health benefits should be the linchpin of a decision to regulate under any rational program. EPA's experience to date under Section 112 confirms this obvious proposition. For example, EPA declined to regulate benzene emissions from ethylbenzene/styrene (EB/S) plants after finding, based on a "plausible upper limit" risk assessment, that the risk from current emission is not more than about 0.0067 leukemia cases per year, or one case every 149 years.[24] EPA also found that the application of available combustion control techniques would prevent 0.0047 cases per year, or one case every 213 years.[25] Yet, because the 13 EB/S plants were estimated to emit 210 megagrams (about 231 tons) of benzene annually,[26] most or all of them might be subject not only to additional "BACT" (really LAER) controls, but also eventually to complete emissions bans, under Title V.

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[22] U.S. Refining Industry Capability to Manufacture Ultra Low Sulfur Diesel Fuels, National Petroleum Refiners Assoc., 1986.

[23] Report of the Alternate Fuels Working Group, Office of the Vice President, July, 1987.

DISRUPTIVE IMPACT ON CURRENT REGULATORY PROGRAMS

There is an even chance that, as proposed, Title V will actually undermine the public health through the bureaucratic confusion and regulatory paralysis it will create. The bill not only supplants a workable program already in place (CAA Sections

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[24] EPA Deicision on Petition for Reconsideration of Benzene Decisions under Section 112, 50 Fed. Reg. 34144, 34147 (Aug. 23, 1985).

[25] EPA Proposal to Withdraw Proposed Standards for Certain Benzene Sources, 49 Fed. Reg. 8386, 8390 (Mar. 6, 1984).

[26] *Ibid*.

109,110,111,112) for regulating many hazardous air pollutants, but the replacement program disturbs the existing regulatory structure of the Act, encroaches on programs established under other statutes (specifically TSCA and SARA), bristles with deadlines, and introduces a welter of new criteria that are vague and certainly will be controversial. The inevitable end result will be confusion, controversy, litigation and, therefore, delay.

For example, the bill would introduce into Section 112 a number of new regulatory criteria which have not heretofore been used by Congress or EPA, including crucial regulatory cut-off tests like "negligible risk" as well as totally new environmental tests such as "injury to or loss of wildlife" and "damage to. . . natural resources." Experience under other absolutist statutes like the Federal Food, Drug and Cosmetic Act's Delaney Clause, suggests that critical terms such as these will be the focus of strenuous regulatory and judical efforts to bring some semblance of reason and practicality into the legislation.

Regulators will look hard for any and all elements of flexibility in the legislative text in order to effect efficient and reasonable results in specific applications. They may even, as former EPA Administrator Ruckelshaus has reportedly said of Section 112, "torture the language" to produce sensible outcomes.[27] It takes time, of course, for regulators to formulate an approach that makes the best of a bad bill. And interested parties who dislike the approach chosen can be counted on to take their grievances to their forums, including the courts. Today, sixteen years after the original enactment of Section 112, the meaning of the term "ample margin of safety" to "protect the public health" remains a subject of hot dispute which only recently has become ripe for resolution by the Courts.

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[27] Inside EPA, Nov. 9, 1984, p.8.

If the statutory text leaves little or no room for rational judgment, the risk assessment and balancing process may be driven underground, where it remains hidden from public and legislative policy review. This is in fact what has happened under the "adequate margin of safety" criterion for ambient air quality standards under Section 109 of the Clean Air Act. Because of the text and legislative history of that provision, the courts and EPA have read it to permit, if not require, the setting of standards without regard to attainability, costs or other practical factors. Yet, there can be no doubt that practical concerns have played a key role in these decisions.

For example, EPA's 1978 ambient air quality standard for lead was adopted with findings that it could not protect everyone, that under the standard adopted perhaps 20,000 young children might experience blood levels above the "threshold" EPA postulated for decisionmaking purposes, and that the standard nevertheless provided protection against "unacceptable" risks to health.[28] Likewise, EPA's 1978 decision under Section 109 for Ozone conceded that "a clear threshold of adverse health effects cannot be identified," but nonetheless rejected the option of "a zero-level standard" because that would "have significant impact on economic and social activities." [29] But because of the perceived legal stricture against consideration of practical factors, the Administrator's statement of reasons did not identify in either case what trade-offs were made in setting the standards or what additional trade-offs would be required to increase the margin of safety to address the admitted existence of possible harm below the standards.

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[28] EPA, National Ambient Air Quality Standard for Lead, 43 Fed. Reg. 46246, 46251, 46252, 46255 (Oct. 5, 1978)

In the case of Section 112, EPA initially tried to create a similar fiction that practical concerns played no role in standard-setting, [30] but quickly recognized that, in the case of apparent non-threshold pollutants like asbestos, vinyl chloride, benzene and others, such a fiction could not be sustained. [31] Thus, the trade-offs involved in Section 112 decisionmaking are today typically laid bare for all to see. Not everyone is happy with the calls the Agency has made (including the petroleum industry), but at least the basis for the kind of policy debate that should be occurring here is established. Extreme, unrealistic legislation like the bill before us today only forces that debate to take place behind closed doors among a select few.

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[29] EPA, National Primary and Secondary Ambient Air Quality Standards for Ozone, 44 Fed. Reg. 8202, 8313 Feb. 8, 1979).

[30] EPA, Asbestos Standards, 38 Fed. Reg. 8820 (Apr. 6, 1973).

[31] Ibid.; EPA, Proposed Vinyl Chloride Standards, 40 Fed. Reg. 59532, 59534 (Dec. 24, 1975).

Even more confusion and delay will result from the encroachment upon other regulatory programs in Title I of the current Act as well as other statutes. For example, the new environmental protection criteria added to Section 112 by the bill could conflict not only with ambient air standards set under Section 109 of the Clean Air Act but also with TSCA. Similarly, the health effects testing provisions of the bill overlap, duplicate, and may be inconsistent with comparable provisions in TSCA and SARA. Putting aside the obvious waste involved in needlessly duplicating the same activities under two or three different legislative programs, history tells us that affected factions will lobby hard to persuade administrators to carry out these activities under the programs that they perceive as most advantageous to their private interests. History tells us, too, that litigation is sure to follow Agency attempts to reconcile competing statutory demands and to resolve questions of program jurisdiction. Simply put, Title V is a new prescription for delay.

WHAT SHOULD CONGRESS DO?

The toxic and hazardous air pollutant provisions in Title V are ill-conceived. They reflect a "no risk" philosophy that has been broadly condemned as inconsistent with today's society and as undermining -- not promoting -- the public health. They attempt to achieve this impractical objective through a repeated ratcheting-down of emissions which proceeds with no scientific evaluation of the degree of risked posed by whether there are real health benefits sufficient to justify the costs and dislocation of controls. Further, Title V contains additional features that will only serve to defeat one of the apparent purposes of the bill -- to speed up the regulatory process.

All of this leads us to a threshold question: where is the justification for such a complete overhaul of Section 112? Section 112 was originally enacted sixteen years ago and and in the intervening years the Agency has painstakingly developed a full-scale regulatory program to implement it. The program includes procedures designed to provide early and meaningful public involvement, as well as independent scientific and technical review, of the Agency's preliminary analyses of hazard, exposure, and public health risk. It also includes reasonably well-defined substantive criteria governing crucial regulatory decisions, including (i) whether or not to list, (ii) whether or not to set standards for particular categories of emitting sources and, for those source categories to be regulated, (iii) how stringent the standards should be.

To be sure, a few features of Title V do reflect an effort to make genuine improvements to the present scheme. Specifically, new Paragraph (c)(1)(B) of Section 112 as envisioned in the bill would codify the Agency's current practice of preparing health assessments and conducting public and SAB review prior to taking the often decisive step of listing. And proposed new Paragraph (c)(1)(D) would provide a three-year schedule after listing for developing standards, a period much more realistic than the one-year timetable in the current Act.

But for the most part Title V simply obliterates the Agency's current program. If the primary motivationfor Title V is the Agency's failure to address more potentially hazardous pollutants than it has to date, an overhaul is not necessarily the answer. An important reason why there has not been more progress to date is that the existing legislative text is ambiguous or altogether silent on crucial procedural and substantive issues. Now that a full-scale program has emerged through administrative construction and implementation, including exposure to judicial scrutiny, it seems prudent to allow it to operate before we pass judgment on its efficiency. The answer most assuredly is not to simply wipe out the efforts of the past and to substitute a brand new scheme that requires EPA to begin the program-building process over again.

In conclusion, Title V should be rejected. What Congress should do now is take a hard look at the existing EPA program and initiate a public dialogue addressing what its shortcoming are and what modifications are called for to address them. API stands ready to participate constructively in that dialogue.

CMA
CHEMICAL MANUFACTURERS ASSOCIATION

ORAL STATEMENT OF

KAREN L. SHEWBART
THE DOW CHEMICAL COMPANY

ON BEHALF OF THE
CHEMICAL MANUFACTURERS ASSOCIATION

BEFORE THE
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

REGARDING
AIR TOXICS CONTROL

JULY 23, 1987

2501 M Street, NW • Washington, DC 20037 • Telephone 202/887-1100 • Telex 89617 (CMA WSH)

Mr. Chairman and Members of the Subcommittee:

My name is Karen Shewbart. I am Environmental Manager for the Dow Chemical Company's Texas Operations located in Freeport, Texas. I have overall environmental responsibility for our Texas Operations which is one of the largest petrochemical complexes in the world. In 1986, we safely handled 4000 chemicals and produced 24 billion pounds of products valued at 3.3 billion dollars. Today I am testifying on behalf of the Chemical Manufacturers Association (CMA) and The Dow Chemical Company.

CMA will be submitting a statement for the record detailing the concerns we have with the proposed amendments to the Clean Air Act contained in Title V of the committee working paper. From my perspective, I would like to describe how Dow has controlled toxic air pollutants. Further, I shall explain why major changes in Section 112 of the Clean Air Act and why the proposed additional regulation of extremely hazardous air pollutants are not necessary at this time.

The chemical industry has significantly reduced air emissions. These reductions and the industry's strong programs to minimize waste provide the foundation for continuing and improving existing programs. To illustrate, I would like to show the Subcommittee air emission data from Dow's two largest operations. As you can see by this graph, our Texas Operations have reduced hydrocarbon air emissions by 55% since 1975. We project a further reduction below current levels of 30% during the next two years. Similarly, reductions of 75% can be seen for our Midland, Michigan site with a planned 50% reduction over the next two years. This second graph, which also shows emission reductions, is a photocopy of an article which appeared on the front page of the daily newspaper in Midland, Michigan. These emission reductions, and the communication about our progress to local communities, are hallmarks of CMA's Air Quality Control Policy and Dow's Waste Reduction Program.

Any effective program must consider technical feasibility and cost. However, the impact of emissions on employees and residents must be the key factor in determining whether additional controls are needed.

I would like to discuss two sections of the proposed legislation which deal with hazardous air pollutants (HAPs) and extremely hazardous air pollutants (EHAPs).

In recognizing that human health must not be compromised, Congress wrote Section 112 to concentrate on substances that adversely affect human health. This section sets forth a definition of hazardous air pollutants to guarantee such special focus is maintained.

Radical changes proposed in the new legislation will dilute this priority by designating a greatly expanded universe of chemicals to be regulated. The objective of an air toxics control program must be to prioritize efforts and regulate those compounds which pose the greatest human hazard. The new definitions are so broad that almost any substance in the air could be included as a "hazardous" air pollutant.

Because of the large list of chemicals that would be regulated under this legislation, the Agency's efforts on prioritized substances could be diminished and the net result could be less human health protection rather than more.

Although we have concerns, CMA and Dow support EPA's current efforts to regulate a number of compounds under its hazardous organic NESHAP. In fact, we urge EPA to move forward with this proposal. Congress also should support continued progress, not sweeping changes that will have the net effect of slowing or stopping current progress.

I would like to turn my attention to the Extremely Hazardous Air Pollutant section of Title V. These provisions duplicate existing federal programs, and are not necessary. The Superfund Amendments Reauthorization Act (SARA) already provides for the identification of facilities of concern, toxicity characterization, emergency planning and hazard assessment, and the reporting of accidental releases.

Section 305 of SARA also requires EPA to conduct a review of emergency systems for monitoring, detecting, and preventing releases of extremely hazardous substances and report its findings to Congress. This report will include recommendations for initiatives to support the development of new or improved technologies or systems in these areas should they be needed.

In addition, Occupational Safety and Health Administration (OSHA) routinely audits safety systems and programs at plants which produce or use these substances. The OSHA's recently conducted Special Emphasis Program has greatly enhanced that Agency's auditing expertise. OSHA's authority to investigate situations involving deaths or significant property damage would be duplicated by the proposed Chemical Safety and Hazards Investigations Board.

To summarize, dramatic progress has been made in the reduction of air toxics within the framework of the existing Clean Air Act. Attaining clean air goals and protecting human health depends on fine tuning and supporting existing programs, rather than the radical restructuring as mandated in this bill.

I will be happy to respond to any questions you might have at this time.

DOW DOW CHEMICAL U.S.A.

August 28, 1987

TEXAS OPERATIONS
FREEPORT, TEXAS 77541

The Honorable George J. Mitchell
United States Senate
Washington, D.C. 20510

Dear Senator Mitchell:

As a follow-up to my July 23 oral testimony on Title V of the Subcommittee's working paper on Clean Air Act Amendments and in response to member's questions, I would like to provide some additional information for the record.

There was a question as to EPA's action on chromium under Section 112. Enclosed is a copy of the Federal Register (50 FR 14905-14906) showing that EPA plans to propose regulations on three major source categories by mid-year 1988. I have also included a list of the chemicals that EPA has or is evaluating under Section 112. These are the prioritized chemicals (based on toxicity and volume emitted) which EPA feels presents the greatest risk to public health and, therefore, needs to be evaluated. Sixty-five of the 80 chemicals being studied are found on the Sara 313 list.

Other authorities within my company have addressed Senator Breaux's question, "Can industry meet a 'one in a million' regulation?". The summary is enclosed. However, I would like to restate a number of points here, too.

As I stated in my testimony, a combination of many factors determines if an industry, plant or process unit shuts down. I firmly believe that if Title V is implemented it will be the sole factor in causing many small businesses to close their doors. For some large industries, it will add one more unnecessary burden that will ultimately shut down some operations or drive them away.

We all want the public to be protected from any unreasonable risk due to air emissions. Many factors have to be evaluated to determine the appropriate emission limit for a specific compound to adequately protect human health. While Congress must oversee this process to ensure proper direction

AN OPERATING UNIT OF THE DOW CHEMICAL COMPANY

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and focus is maintained, the scientific review should be the responsibility of EPA along with the technical community. The review should interpret appropriate information and determine a safe level which eliminates any unreasonable risk. If Congress feels that the process is moving too slowly, then it should make the appropriate administrative changes to ensure continued progress. It should not itself just set arbitrary health-based standards.

Respectfully,

Karen L. Shewbart

Karen L. Shewbart

Enclosure

cc: Members of the Environment and Public Works Committee

DOW CHEMICAL U.S.A.

August 28, 1987

TEXAS OPERATIONS
FREEPORT, TEXAS 77541

The Honorable John Breaux
United States Senate
Washington, D.C. 20510

Dear Senator Breaux:

As a follow-up to my July 23 oral testimony on Title V of the Subcommittee's working paper on Clean Air Act Amendments, other authorities within my company have addressed your question, "Can industry meet a 'one in a million' regulation?" Our summary is enclosed.

As I stated in my testimony, a combination of many factors determine if an industry, plant or process unit shuts down. I firmly believe if Title V is implemented that it will be the sole factor that will cause many small businesses to close their doors. For some large industries, it will add one more unnecessary burden that will ultimately shut down some operations or drive them away.

We all want the public to be protected from any unreasonable risk due to air emissions. Many factors have to be evaluated to determine the appropriate emission limit for a specific compound to adequately protect human health. While Congress must oversee this process to ensure proper direction and focus is maintained, the scientific review should be the responsibility of the technical community. The review should interpret test results and determine a safe level which eliminates any unreasonable risk. If Congress feels that the process is moving too slowly, then it should make the appropriate administrative changes to ensure continued progress, not set arbitrary health-based standards.

Respectfully,

Karen L. Shewbart

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Enclosure

AN OPERATING UNIT OF THE DOW CHEMICAL COMPANY

Quality
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CAN INDUSTRY MEET A "ONE IN A MILLION" REGULATION?

EXECUTIVE SUMMARY

Large industries can probably meet one in a million for some compounds in vent emissions but certainly do not have the ability to comply with such a stringent level for fugitive emissions (emissions from the many valves, flanges, fittings, pumps, etc. found in a plant). For either case, the cost would be absolutely staggering.

Smaller industries and secondary industries do not have and cannot afford the technology to comply with a one in a million regulation and remain competitive. The present technology is incineration of vent emissions. This requires sophisticated incinerators that are too complex and costly for small industries to run, much less afford. Many of these industries have switched to their present chemicals because of known risks associated with the chemicals they used before. To develop new replacements would be a lengthy process, if not impossible.

Not only is it important to know whether industry can meet a one in a million regulation, but one should ask also "Why is such a widespread, stringent emission standard needed"?

The present Clean Air Act prioritizes its efforts by setting stringent control standards for those chemicals which have the highest risk. These compounds have been determined by appropriate scientists and decision makers who understand the limitations of risk assessment and risk management, respectively. While Congress must oversee this process to ensure that proper direction and focus is maintained, the scientific review should be the responsibility of EPA and the technical community. It should interpret the test results and determine the appropriate safe level to eliminate any unreasonable risk. If additional control is still needed to eliminate any remaining unreasonable risk, then it should be at the appropriate control level, not at a level that will eliminate major segments of industry.

ONE ONLY HAS TO LOOK AT THE CALIFORNIA EXPERIENCE TO SEE THE EFFECTS OF A ONE IN A MILLION REGULATION ON BUSINESS.

The South Coast Air Quality Management District (Los Angeles area) is working on a "Carcinogenic Air Contaminants" rule which encompasses the one in a million risk level for regulation purposes. The following are actual case examples of companies which tried to get permits for new or modified sources using the new proposed rule:

- A pharmaceutical company applied for a permit to emit only 3 pounds per day of methylene chloride after using a sophisticated control device. The permit was denied and the company will not reapply.

- A permit to emit 7 pounds per day of perchloroethylene was rejected because emissions were too high. Over 1000 drycleaners in California will be unable to satisfy this requirement if it applied to existing sources.

These are but a few of the permits which have been rejected. Preliminary results of studies done on the effect of the California regulation indicate the following:

- Approximately 50% of small businesses in California that use one group of compounds (chlorinated solvents), would not be able to comply with the one in a million regulation because there is no known acceptable alternative. Those who could comply would have to spend between $20,000 and $200,000 in new capital and incur much higher operating costs. This spectrum of small businesses include dry cleaners, cold cleaning, coatings users, printers, adhesive manufacturers, paint strippers, furniture strip shops, aerosol producers, and urethane foam producers. They employ over 250,000 people.

Obviously, the proposed California regulation will have a major impact on all businesses. However, Title V goes much further than what California has proposed. For instance:

1. The actual cases cited in California were for new or modified sources. The net effects of not obtaining the permit were either that the plant was not built and the business moved elsewhere, or the modification was not made. Title V, however, applies to not only new and modified sources but to existing sources as well. Therefore, these older technologies would probably not be able to comply, and would shut down.

2. Due to the wording in the health-based standard in Title V, an extremely large universe of compounds will require stringent regulation. Approximately 60% of all compounds tested have caused cancer in animals at massive doses. Because of this, many compounds are classified as "possible carcinogens", even though the possible human exposure levels are so low that there is no potential hazard. This new enormous list will pale the 21 compounds that California is currently finding extreme difficulty in balancing with their economic future.

3. Title V requires that once the health-based standard is set (let's assume one in a million), then an ample margin of safety must be applied. The interim standard will be used as a minimum standard by intent of Congress to which a final standard will require the addition of an "ample margin of safety". This would suggest that emissions would have to be the same or lower than those required in California. It is reasonable to assume that if Title V was implemented, more than 50% of the regulated chemical users would have to shut down, as evidenced by the California proposal which is experiencing significant economic hardship at only one in a million.

INDUSTRY IS NOT AGAINST SPENDING THE NECESSARY CAPITAL TO ELIMINATE UNREASONABLE RISK.

We are, however, against expending resources to solve, in most cases, a non-problem. Consider these two points:

1. For many compounds, one in a million risk means ambient levels (the levels citizens are exposed to) in the low parts per trillion range. Occupational limits (the amount that independent scientists have determined is safe for our workers) to these same compounds are in the low parts per million range, or approximately one million times higher than the proposed ambient exposure levels. Typical examples include the following:

Chemical Emitted	Approved Occupational Exposure (ppb)	Proposed Title V Concentration (ppb)	Difference
111 trichloro-ethane	350,000	0.400	880,000 times as stringent
1,3 butadiene	10,000	0.002	5,000,000 "
perchloroethylene	50,000	0.250	200,000 "
ethylene oxide	1,000	0.006	170,000 "

For these chemicals and many others, studies have shown that employees exposed to the government-set occupational levels do not show an increased, overall incidence of cancer or other diseases. Given these known facts, we conclude controls to one in a million risk is excessive and distructive to American business.

2. Published studies have documented the general good health of chemical workers with very few past exceptions. In fact, the improved health of these workers is referred to as the

"healthy worker effect". These workers typically show age-adjusted mortality rates 20-40% lower than national averages even after historically higher exposures. Since many of these industries use the same compounds that this proposed legislation would further control, and are showing decreases in mortality rates, then why propose to expend tremendous resources to solve a non-problem?

The chemical industry has achieved the distinction of being the second safest industry by being responsible. Large amounts of money are spent to eliminate unnecessary hazards for our workers. The same has happened with regard to eliminating unreasonable risk associated with air pollution.

CONGRESS SHOULD NOT LEGISLATE COMPLEX HEALTH-BASED STANDARDS.

The determination of acceptable risk is a compound-by-compound decision and should be undertaken by EPA and not determined by legislation. To understand why this is necessary requires an understanding of the assessment and management of risk.

Interpretation of Risk

The output of mathematical models, such as those used by EPA, is the hypothetical upper bound on increased lifetime risk. For instance, a one in a million risk means that, for a population exposed for the entire seventy years of its lifetime, the upper bound on the increase in the number of incidences of cancer is one- that is, 250,001, as compared to 250,000 as the normal expected incidence in a population of one million.

The above statement reflects a literal interpretation of the risk numbers generated in a risk assessment. It is important, however, that risk assessment results be viewed in the context of how the numbers have been derived. The risk assessment procedure is a useful regulatory tool, but it includes a number of conservative assumptions which preclude literal interpretation of the calculated risks in terms of actual risks. Because of the multiple upper limit or worst case assumptions which are made in the different steps of the calculation, the result is an upper limit, and it exceeds the expected risk by some large but indeterminate amount. According to EPA, "the true risk is unknown and may be as low as zero."

The Harvard University Energy and Environmental Policy Center has estimated that risks calculated in the risk assessment process are overstated by up to 35,000-fold (Nichols and Zeckhauser, 1985); whereas, Elizabeth Anderson (1986), former head of the Cancer Assessment Group for the EPA, estimates that the current risk assessments overestimate risk by 16-fold to over 10,000-fold.

In a practical application, if risk is overestimated by 1,000-fold, the one in a million risk is really one in a billion risk. Therefore, the number of expected additional cases in an exposed population of one million would actually be 0.001 case during a 70-year period, or an expected value of one hypothetical case every 70,000 years rather than one case over the lifetime of the population.

Strict adherence to upper bound risk estimates (one in a million) will, in some cases, cause economic dislocation without significant benefits. This issue has been addressed in detail by the Harvard Energy and Policy Center. In a review of the risk assessment process, they state that...

> "The cumulative effect of following the upper-bound path, using a long series of conservative assumptions, can be monumental over-estimates of health risks. The result is more stringent and costly regulation of at least some types of risk than if policymakers were more realistically informed. But apart from creating a tendency toward over-control, biased estimates distort the pattern of regulation. Some low-level risks are regulated too stringently while more severe risks are tolerated. The price we pay for risk reduction is too high and, if the discrepancies in stringency are great enough, we may even end up with more risk than we would with realistic assessments. Conservatism in risk assessment, in other words, may lead to a pattern of regulatory decisions that jeopardizes public health and safety."

Because of the above reasons, it is important that risk assessment be viewed as guidance for deriving regulatory controls rather than as actuarial estimates of risk.

Risk Assessment/Risk Management

There are a number of distinct steps in the risk assessment process, each of which involve a number of assumptions and regulatory policies. The first step is the assessment of the potential for a compound to be a human carcinogen. The weight of evidence varies widely from a relatively small number of known human carcinogens to a much larger group which shows only some oncogenic activity in some animals at very high exposure levels. There are a number of classification schemes which are being used to categorize evidence for carcinogenicity.

The most widely used is the IARC (International Agency for Research on Cancer) classification and the more recent, but similar, EPA system. Following are the categories in the IARC classification.

Group 1	Human Carcinogens: compounds for which there is "sufficient evidence...to support a causal association between exposure to the agents and cancer (in humans)."
Group 2A	Probable Human Carcinogens: limited but not sufficient evidence in humans and sufficient evidence in animals, or sufficient evidence in animals and clear evidence of genotoxic activity.
Group 2B	Possible Human Carcinogen: no evidence in humans and limited or sufficient evidence in animals, or limited evidence in humans and no evidence in animals, or limited evidence in animals and clear evidence of genotoxic activity.
Group 3	Not Classified: inadequate data or no data.
Group 4	Evidence of Noncarcinogenicity: no evidence of carcinogenicity in humans and in at least two animal studies.

The above classification points out the differing degrees of evidence as to carcinogenic potential. Unfortunately, the quantitative steps in the risk assessment process do not reflect the differing degrees of evidence for the likelihood of a compound representing a human health hazard except on an all-or-none basis.

Examination of recent regulatory decisions (Travis, et al., 1987) does indicate that other factors besides the numeric risk calculation are included in the risk management decisionmaking part of the process in the federal agencies. These factors include population risk, costs, benefits, alternatives and impacts as well as qualitative animal data reflecting increased or decreased potential hazard. The flexibility to make risk management evaluations must be an integral part of an air toxics program. This philosophy is a reasonable and realistic approach to risk management.

The present quantitative steps in risk assessment often result in more conservatism for weaker potential carcinogens, due to the assumptions. Risks to humans for known human carcinogens can be estimated with reasonable accuracy, whereas compounds showing variable responses in highly sensitive rodents have much more uncertainty in the quantification of risk. The regulatory policy of worst case assumptions made at each step of the process results in more conservative risk assessments for marginal compounds, and less stringent evaluation of the known human carcinogens. For instance, the EPA unit risk for vinylidene chloride is 20 times higher (more stringent) than it is for vinyl chloride. Vinyl chloride is a known human carcinogen (Group 1), whereas vinylidene chloride (Group 2B) has no evidence of carcinogenicity in humans, and is positive in only one of numerous animal studies, in one sex and at one dose level.

It is not consistent, in light of the available data, to regulate vinylidene chloride more stringently than vinyl chloride, much less 20 times more strictly. This serves to highlight the fact that it is not appropriate to regulate all compounds at the same numeric level.

EPA understands the limitations of the risk assessment process and as a result does not strictly adhere to any numeric cutoff. Instead they make risk management decisions on a case-by-case basis. Congress should not eliminate this necessary flexibility by specifying a specific numerical outcome (e.g. one in a million). Congress must and should attribute credibility to EPA as the Agency in the government having the expertise and responsibility for these things.

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NEIGHBORHOOD CLEANERS ASSOCIATION 116 East 27th Street, New York, NY 10016 (212) 684-0945

STATEMENT BY WILLIAM SEITZ, EXECUTIVE DIRECTOR
NEIGHBORHOOD CLEANERS ASSOCIATION
July 23, 1987

TO: Senate Environment and Public Works Sub-Committee on Environmental Protection

Re: S-1384 (Air Toxics Control)

Good Evening, Chairman Mitchell and Honorable members of the committee. I am here on behalf of the over 4,000 members of the Neighborhood Cleaners Association, a nine state group which covers the largest drycleaning market in the United States and, probably the world. NCA land includes, New York, New Jersey, Connecticut, Massachusetts, Rhode Island, Pennsylvania, Delaware, West Virigina and Florida.

I do not come before you as a scientific or technical expert to comment on S-1384. Quite honestly, I am not familiar enough, at this time, with the indepth ramifications that the proposed bill covers and its potential impact that it can have on the drycleaning industry. Although I do not represent all of the over 30,000 drycleaning plants in the United States, I believe I represent the thinking and attitude of the overwhelming majority of people who make up the drycleaning industry.

Let me state, emphatically, that the drycleaning industry does not take an adversary posture regarding regulations to control the emissions of hazardous air pollutants. On the contrary, we have demonstrated by our actions over the last seven years of government regulations and over the last forty-five years as a matter of eco-

(OVER)

New York New Jersey Connecticut Pennsylvania Delaware Massachusetts Rhode Island Florida West Virginia

NOMICS AND SAFETY, THAT CONTROL CONTAINMENT AND RECLAMATION OF THE DRYCLEANING SOLVENT USED BY OVER 95% OF OUR MEMBERS AND BY OVER 75% OF THE DRYCLEANERS THROUGHOUT THE UNITED STATES, IS A NECESSARY AND ESSENTIAL REQUISITE. WE ARE CONCERNED ABOUT THE COMMITTEE'S CONCEPT OF A "LISTING" OF CHEMICALS BY EPA THAT DOES NOT TAKE INTO CONSIDERATION THE DIFFERENCES OF HOW THESE CHEMICALS ARE BEING USED BY ONE INDUSTRY AS COMPARED TO ANOTHER.

THE CHEMICAL THAT I AM REFERRING TO IS THE DRYCLEANING FLUID PERCHLOROETHYLENE ALSO KNOWN AS TETRACHLOROETHYLENE OR "PCE". THERE HAS BEEN AND CONTINUES TO BE A SERIOUS DIFFERENCE WITHIN THE SCIENTIFIC COMMUNITY AS TO THE POTENTIAL HAZARD THE SOLVENT POSES TO THE WORKERS AND THE PUBLIC. JUST THIS MORNING, I ALONG WITH A GROUP OF INDUSTRY REPRESENTATIVES MET WITH MR. LEE M. THOMAS, ADMINISTRATOR OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY, TO REVIEW THE PROGRESS OF THE DELIBERATIONS OF EPA AND THE SCIENCE ADVISORY BOARD REGARDING THE CLASSIFICATION OF "PERCHLOROETHYLENE". UNDER THESE CIRCUMSTANCES, TO "LIST" PERCHLOROETHYLENE WOULD NOT ONLY BE UNFAIR BUT THE NOTORIETY OF THE "LISTING" AND THE EFFECT ON THE PUBLIC'S PERCEPTION OF THE CHEMICAL OR THE DRYCLEANER COULD ONLY HAVE A NEGATIVE IMPACT OR IMPRESSION IN THEIR MINDS. IT WOULD BE FURTHER DAMAGING IN TERMS OF A SIGNAL TO OTHER AGENCIES, EG: OSHA AND STATE ENFORCEMENT AGENCIES, TO DEVELOP MORE STRINGENT AND, AT PRESENT, UNATTAINABLE STANDARDS THAT WOULD CAUSE A SERIOUS ECONOMIC HARDSHIP AND, POSSIBLY, THE DEMISE OF SIGNIFICANT NUMBER OF DRYCLEANERS THROUGHOUT THE COUNTRY. THERE IS NO ALTERNATIVE SOLVENT AVAILABLE TO THE INDUSTRY THAT CAN REPLACE PERCHLOROETHYLENE AND, IN MY OPINION, THERE NEED NOT BE ONE IN TERMS OF WHAT THE DRYCLEANING INDUSTRY HAS DONE TO SIGNIFICANTLY REDUCE THE EXPOSURE AND EMMISSIONS OF THE CHEMICAL IN THE WORKPLACE AND THE ATMOS-

PHERE.

I MENTIONED EARLIER THAT THE DRYCLEANING INDUSTRY HAS ALWAYS RECAPTURED OR RECLAIMED PERCHLOROETHYLENE AND HAS ACCEPTED THE CONCEPT OF "REASONABLE AVAILABLE CONTROL TECHNOLOGY" (RACT) AS DEVELOPED FOR THE INDUSTRY BY EPA. I WOULD LIKE TO AMPLIFY THAT STATEMENT BY BEING MORE SPECIFIC IN TERMS OF WHAT THE INDUSTRY HAS DONE HISTORICALLY, PRESENTLY AND FUTURE DEVELOPMENTS.

1. BECAUSE OF THE HIGH COST OF PERCHLOROETHYLENE ($3.50 TO $4.00 PER GALLON) IT WOULD BE IMPOSSIBLE TO OPERATE WITHOUT AN EFFECTIVE MEANS OF RECAPTURING THE SOLVENT VAPORS. FROM THE VERY FIRST DRYCLEANING MACHINE USING PERCHLOROETHYLENE, THE EQUIPMENT WAS ENGINEERED TO RECLAIM THE SOLVENT. EITHER AS AN INTERGRAL PART OF THE MACHINE (DRY TO DRY UNIT) OR A SEPERATE UNIT USED FOR DRYING (RECLAIMER),AFTER THE THE GARMENTS WERE REMOVED FROM THE DRYCLEANING MACHINE (TRANSFER UNIT). UNDER NORMAL CIRCUMSTANCES THIS TECHNOLOGY WAS CAPABLE OF RECAPTURING FROM 85 TO 90% OF THE SOLVENT LEFT IN THE GARMENTS. IN THE MID 1960'S (BEFORE EPA) A NEW CONCEPT WAS DEVELOPED TO FURTHER REDUCE THE LOSS OF SOLVENT. THE "SOLVENT ADSORBER" OR "SNIFFER" WAS A SEPARATE UNIT THAT WAS ADDED TO THE UNIT THAT COLLECTED THE SOLVENT VAPORS THAT WERE BEING VENTED TO THE ATMOSPHERE. THE ADDITION OF THE "SOLVENT ADSORBER" INCREASED THE EFFICIENCY OF THE OPERATION SO THAT UP TO 96% SOLVENT RECLAMATION WAS ACHIEVABLE. WITH FURTHER TECHNOLOGICAL DEVELOPMENTS, EG: REFRIGERATION AND AZEOTROPIC RECOVERY SYSTEMS, 98 TO 99% RECLAIMATION HAS BEEN ACHIEVED IN MANY DRYCLEANING PLANTS.

(OVER)

OVER 60% OF THE DRYCLEANING INDUSTRY IS PRESENTLY USING ONE OF THESE METHODS AS AN INTERGRAL PART OF THE DRYCLEANING OPERATION.

2. OVER SEVEN YEARS AGO, AS A RESULT OF A REQUIREMENT BY THE NASSAU AND SUFFOLK COUNTY HEALTH DEPARTMENTS IN NEW YORK, TO DISCONTINUE THE DUMPING OF CONTACT WATER DURING THE RECLAIMATION CYCLE, NCA DEVELOPED AND ENGINEERED A DEVICE "ENVIROPURE" THAT ELIMINATED THE PROBLEM. OVER 800 OF THESE UNITS ARE PRESENTLY IN USE. THE ELIMINATION OF CONTACT WATER IS JUST NOW BEING CONSIDERED UNDER PENDING REGULATIONS AS PART OF THE"CLEAN WATER ACT". THE DRYCLEANING INDUSTRY ONCE AGAIN HAS ALREADY SOLVED A POTENTIAL PROBLEM WITHOUT THE NEED FOR REGULATIONS.
3. THE DRYCLEANING INDUSTRY WAS THE FIRST INDUSTRY TO ACCEPT THE NEED FOR PROPER DISPOSAL OF HAZARDOUS WASTE. NCA HAS HAD A PROGRAM IN OPERATION FOR OVER FOUR YEARS (PRIOR TO RCRA) FOR THE LEGAL DISPOSAL OF HAZARDOUS WASTE DISPOSAL SERVICE. THE OVERWHELMING PERCENTAGE OF THE REMAINING 35% ARE BELOW SMALL GENERATOR STANDARDS AND ARE NOT REQUIRED TO USE A LICENSED CARRIER, ALTHOUGH MANY DO ANYWAY.
4. NEW DEVELOPMENTS AND IMPROVEMENTS IN DRYCLEANING MACHINERY AND AUXILIARY EQUIPMENT ARE TAKING PLACE AT A RAPID RATE. "STATE OF THE ART" REFRIGERATION, HEAT PUMPS, DRYCLEANING MACHINES THAT DO NOT VENT TO THE ATMOSPHERE (CLOSED LOOP) ARE THE STANDARD FOR

NEW DRYCLEANING PLANT OPENINGS AND REPLACEMENT DRYCLEANING EQUIPMENT. TRANSFER UNITS ARE NO LONGER BEING MADE SO THAT ALL NEW INSTALLATIONS AND REPLACEMENTS WILL BE MORE EFFICIENT AND WILL FURTHER REDUCE EMMISSIONS. THE COST OF THIS NEW EQUIPMENT IS HIGH. THE AVERAGE DRYCLEANING MACHINE (INSTALLED) IS IN THE AREA OF $30,000 TO $50,000. FOR MANY SMALL BUSINESSES, WHO HAVE RETROFITTED WITH SOLVENT ADSORBERS OR SIMILIAR TECHNOLOGY, THE FINANICAL BURDEN COULD BE FATAL. PLEASE REALIZE THAT THE AVERAGE DRYCLEANER IN THE UNITED STATES HAS A VOLUME OF $100,000.TO $125,000. ANNUAL SALES, EMPLOYS TWO TO THREE PEOPLE PLUS THE OWNER, WHO, MORE OFTEN THAN NOT, IS A PRODUCTIVE EMPLOYEE. HIS NET PROFIT AVERAGES 8 TO 10%. SO THAT WE ARE NOT TALKING ABOUT "FAT CATS" THAT CAN BUY NEW EQUIPMENT WITHOUT GOING INTO DEBT. YES, THERE ARE DRYCLEANERS WHO DO BETTER AND SOME THAT DO MUCH BETTER BUT THE BULK OF THE INDUSTRY IS REALLY "MOM AND POP" OR JUST A LITTLE MORE. THE INDUSTRY IS NOW ABOUT 25% KOREAN OWNED AND THEIR ENTRY INTO THE INDUSTRY HAS REALLY POLIFERATED IN THE LAST FIVE OR SIX YEARS AND THEY ARE GOING THROUGH A LEARNING PROCESS AND HAVE LIMITED RESOURCES. OF GREAT IMPORTANCE IS THE FACT THAT APPROXIMATELY 55% TO 60% OF THE DRYCLEANING MACHINES IN USE ARE TRANSFER UNITS (MOST RETROFITTED) THAT RANGE IN AGE FROM FIVE TO TWENTY FIVE YEARS OLD. MANY OF THE OLDER MACHINES ARE BEING REPLACED BUT IT

(OVER)

IS EVOLUTIONARY PROCESS.

WHAT I BELIEVE IS NECESSARY IS FOR THIS COMMITTEE AND THE APPROPRIATE AGENCIES TO RECOGNIZE WHAT THE REALITY OF THE SITUATION IS . THE IDEA THAT INDUSTRY *MUST* REACH ZERO RISK IS NOT REALISTIC. A MORE REALISTIC AND ACHIEVABLE OBJECTIVE WOULD BE THE PROTECTION OF THE POPULATION AT LARGE FROM *UNREASONABLE* RISK WITH THE OBJECTIVE OF FURTHER REDUCTIONS BUT AT A REASONABLE RATE. THE PROBLEMS OF THE ENVIRONMENT IS A SERIOUS ONE THAT WE MUST IMPROVE AND CORRECT. I DO NOT BELIEVE THAT ANY BUSINESS OR INDUSTRY SHOULD BE EXEMPT FROM ITS RESPONSIBILITIES TO PARTICIPATE IN THE PROCESS. THERE ARE MANY INDUSTRIES THAT HAVE THE FINANCIAL CLOUT TO AVOID OR DELAY THEIR ADHERENCE TO THE GOALS THAT ARE ESSENTIAL TO ACHIEVE IF WE ARE TO SURVIVE AS A SOCIETY.

DESPITE THE FACT THAT SMALL BUSINESS TENDS TO BE REACTIONARY OR RELUCTANT TO SPEND THEIR PRECIOUS DOLLARS ON NEW TECHNOLOGY, THERE ARE EXCEPTIONS. WHAT I HAVE TRIED TO DO IS TO SHOW YOU BY THE FACTUAL DATA AVAILABLE IS THAT THE DRYCLEANING INDUSTRY, WITH FEW EXCEPTIONS, HAS ACCEPTED ITS RESPONSIBILITIES IN A EVER CHANGING WORLD AND HAS RESPONDED IN A POSITIVE AND RESPONSIBLE MANNER AND WILL CONTINUE TO DO SO IN THE FUTURE. WHAT IS ESSENTIAL TO MEET THE OBJECTIVES, THAT YOU HAVE THE RESPONSIBILITY TO ACCOMPLISH, IS A REASONABLE AND MODERATE APPROACH. THE PROBLEMS THAT EXIST TODAY DID NOT OCCUR OVERNIGHT. THE CONTAMINATION OF THE AIR AND WATER HAS TAKEN PLACE OVER MANY YEARS. WE SHOULD NOT HAVE TO WAIT AS LONG FOR THE SOLUTIONS, BUT WHERE AN INDUSTRY HAS DEMONSTRATED ITS COMMITMENT AND WILLINGNESS TO PARTICIPATE IN THE PROCESS, IT SHOULD BE GIVEN THE CHANCE TO SUCCEED - BUT YOU MUST LET IT SURVIVE IN ORDER TO ACHIEVE THESE GOALS.

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I SINCERELY THANK YOU FOR THE OPPORTUNITY TO TELL YOU ABOUT AN INDUSTRY THAT I LOVE, PRIMARILY BECAUSE OF THE HARD WORKING, COMMITTED PEOPLE WHO MAKE IT WORK. I GIVE YOU MY COMMITMENT, NOT ONLY AS A LEADER IN MY INDUSTRY BUT MORE IMPORTANT AS A MEMBER OF THE HUMAN RACE, THAT I WILL HELP YOU ACCOMPLISH ANY REASONABLE GOALS YOU SET.

Table 4-2. SUMMARY OF CARBON ADSORBER TEST DATA

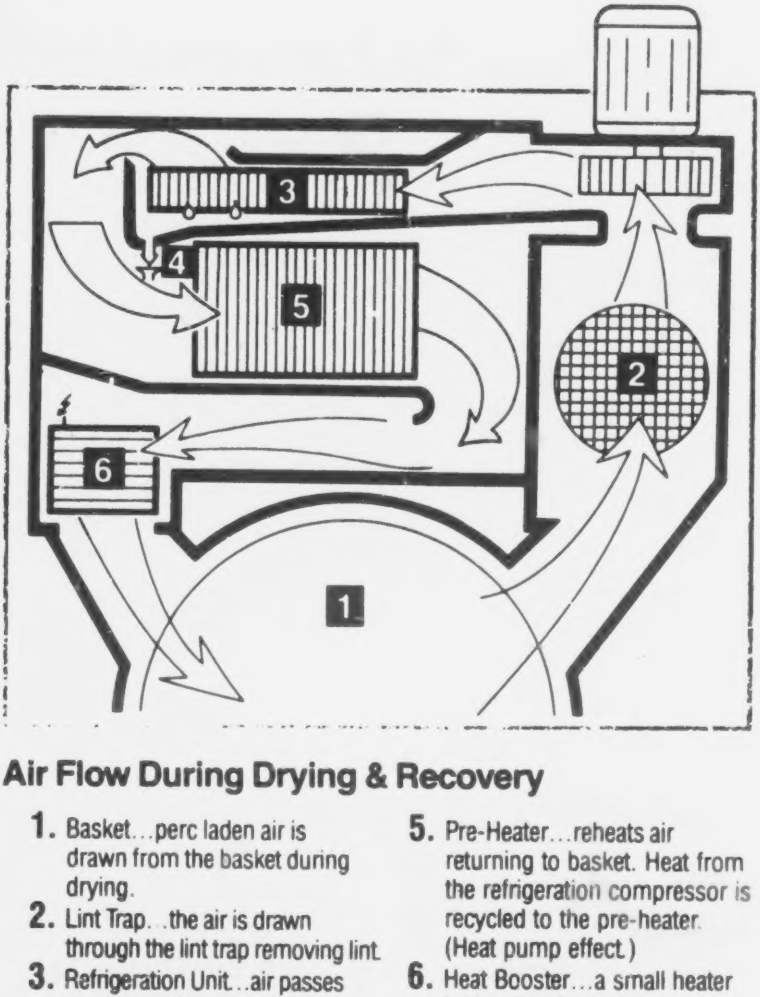
Plant	Process (units vented to carbon adsorber)	Clothes cleaned per day, Kg/day	Inlet concentration, ppm	Outlet concentration, ppm[a]	Adsorber efficiency, percent	Estimated size of unit (floor space) m^2 (ft^2)
A	Transfer, commercial (washer door, dryer floor vents, distillation unit vent)	450	600	25	96	3.7 (40)
B	"Kissing" machine industrial (washer door, dryer)	1750	5300-6500	2	99	5.6 (60)
C	Dry-to-dry, commercial dry-to-dry machine (dry-to-dry machine door, floor vents)	170	3300	100[b]	97	1.1 (12)
D	Dry-to-dry, commercial machine (dry-to-dry machine)	185	400	11	97	1.5 (16)

[a] For one cycle of adsorption-desorption of a single bed.

[b] Limited semicontinuous data show this adsorber to have been underdesigned.

From EPA - Draft EIS
Perchloroethylene Drycleaners
Background Information For Proposed Standards

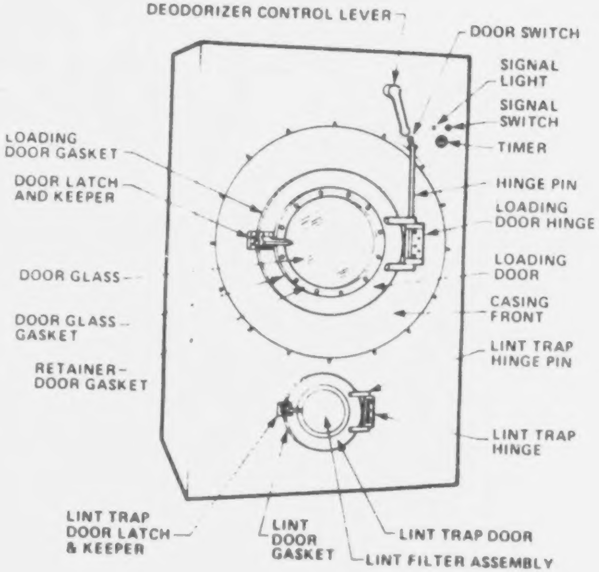
CLOSED RECOVERY SYSTEM



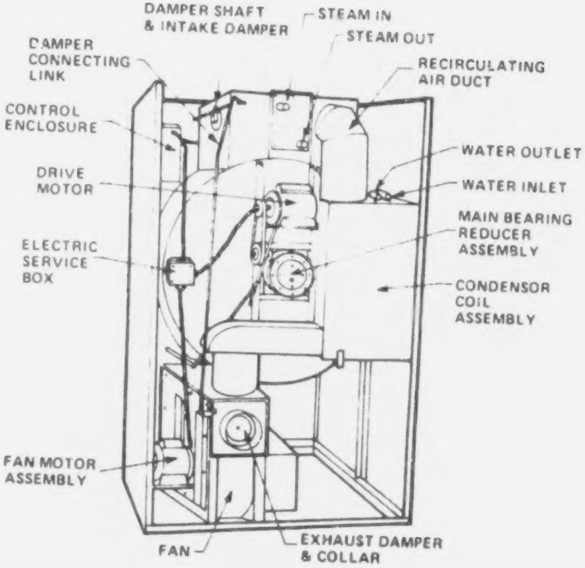
Air Flow During Drying & Recovery

1. Basket…perc laden air is drawn from the basket during drying.
2. Lint Trap…the air is drawn through the lint trap removing lint.
3. Refrigeration Unit…air passes over the refrigeration coils and the perc is condensed out.
4. Condensed Perc…is returned to clean solvent tank.
5. Pre-Heater…reheats air returning to basket. Heat from the refrigeration compressor is recycled to the pre-heater. (Heat pump effect.)
6. Heat Booster…a small heater brings the drying air up to temperature required by the thermostat for drying.

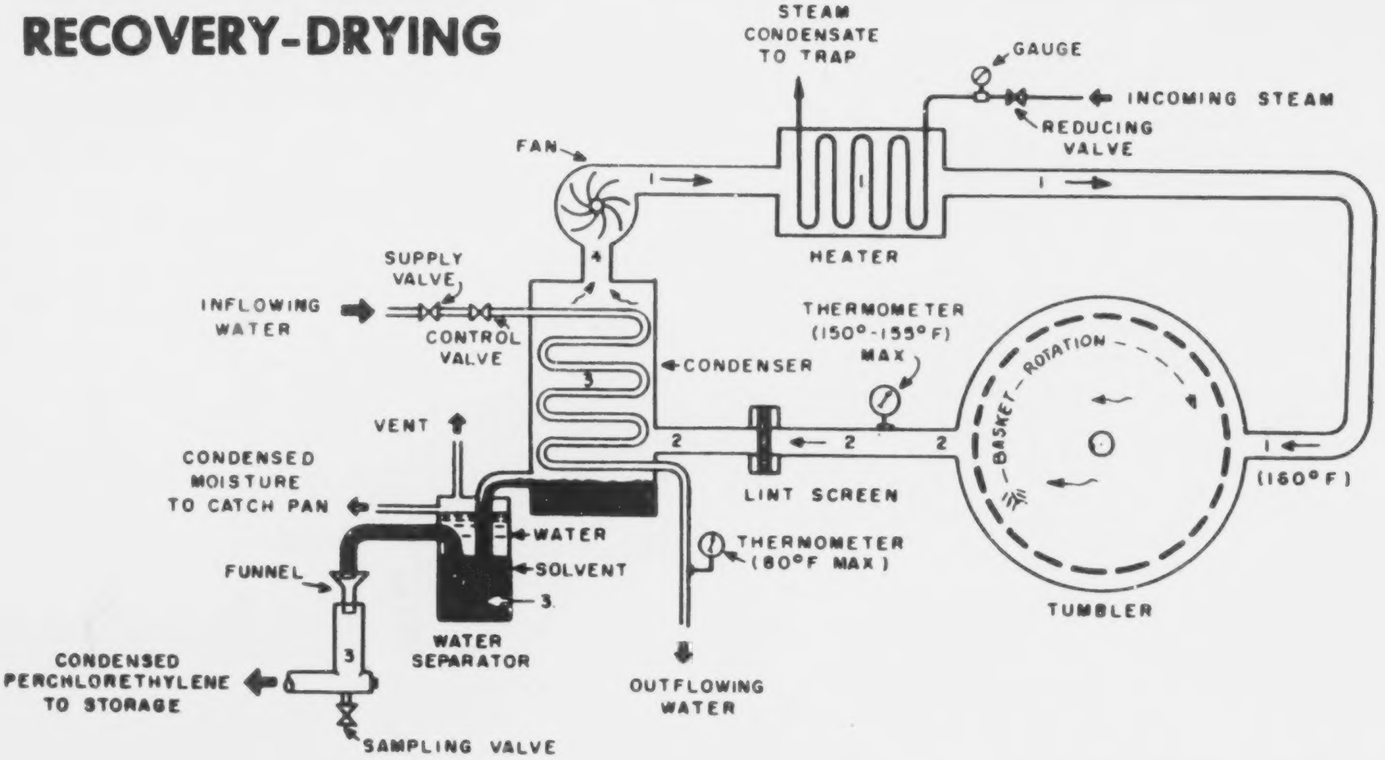
A Typical Reclaiming Dryer (Front View)

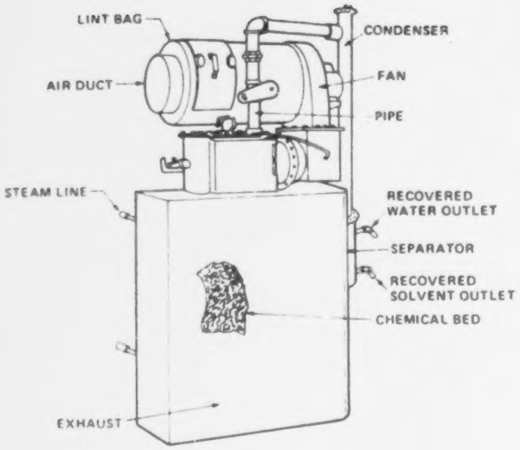

DEODORIZER CONTROL LEVER
DOOR SWITCH
SIGNAL LIGHT
SIGNAL SWITCH
TIMER
LOADING DOOR GASKET
DOOR LATCH AND KEEPER
HINGE PIN
LOADING DOOR HINGE
DOOR GLASS
LOADING DOOR
DOOR GLASS GASKET
CASING FRONT
RETAINER-DOOR GASKET
LINT TRAP HINGE PIN
LINT TRAP HINGE
LINT TRAP DOOR LATCH & KEEPER
LINT DOOR GASKET
LINT TRAP DOOR
LINT FILTER ASSEMBLY

Rear View


DAMPER SHAFT & INTAKE DAMPER
STEAM IN
STEAM OUT
DAMPER CONNECTING LINK
RECIRCULATING AIR DUCT
CONTROL ENCLOSURE
WATER OUTLET
DRIVE MOTOR
WATER INLET
MAIN BEARING REDUCER ASSEMBLY
ELECTRIC SERVICE BOX
CONDENSOR COIL ASSEMBLY
FAN MOTOR ASSEMBLY
FAN
EXHAUST DAMPER & COLLAR

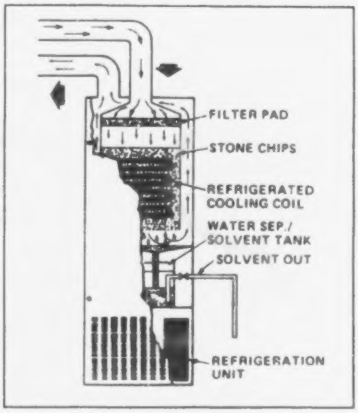
RECOVERY-DRYING

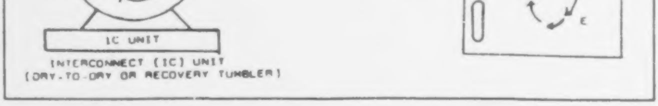

STEAM CONDENSATE TO TRAP
GAUGE
INCOMING STEAM
REDUCING VALVE
FAN
1
1
1
HEATER
4
SUPPLY VALVE
INFLOWING WATER
CONTROL VALVE
3
CONDENSER
THERMOMETER (150°-155°F) MAX
BASKET ROTATION
VENT
2
2
2
1
(160°F)
CONDENSED MOISTURE TO CATCH PAN
LINT SCREEN
WATER
SOLVENT
THERMOMETER (80°F MAX)
FUNNEL
3
3
WATER SEPARATOR
TUMBLER
CONDENSED PERCHLORETHYLENE TO STORAGE
OUTFLOWING WATER
SAMPLING VALVE


LINT BAG
CONDENSER
AIR DUCT
FAN
PIPE
STEAM LINE
RECOVERED WATER OUTLET
SEPARATOR
RECOVERED SOLVENT OUTLET
CHEMICAL BED
EXHAUST

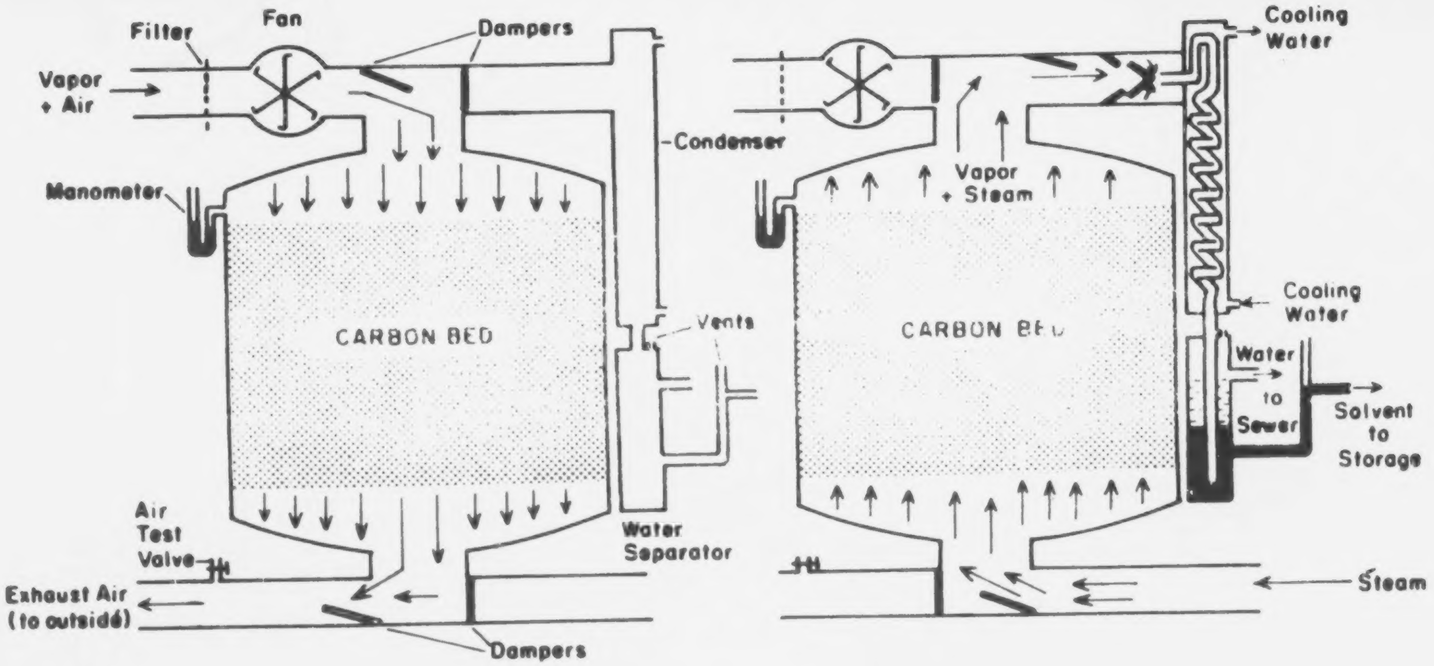
Typical Carbon Adsorber

Typical Refrigeration Solvent Recovery Unit


FILTER PAD
STONE CHIPS
REFRIGERATED COOLING COIL
WATER SEP./ SOLVENT TANK
SOLVENT OUT
REFRIGERATION UNIT


Air Flow
D
Air Flow
CONDENSING COIL
TANK AIR PUMP
H
I
Steam Coil
C
A
Air Flow
G
F
F
H
CAGE/GARMENTS
B
INTERNAL DAMPER
TANK
E
IC UNIT
INTERCONNECT (IC) UNIT
(DRY-TO-DRY OR RECOVERY TUMBLER)

Typical Azeotropic Device


Filter
Fan
Dampers
Vapor + Air
Manometer
Condenser
Vents
CARBON BED
Air Test Valve
Exhaust Air (to outside)
Dampers
Water Separator
Cooling Water
Vapor + Steam
CARBON BED
Cooling Water
Water to Sewer
Solvent to Storage
Steam

ADSORPTION CYCLE

DESORPTION CYCLE

SNIFFER

TESTIMONY OF RICHARD E. AYRES
CHAIRMAN, NATIONAL CLEAN AIR COALITION
ON TOXIC AIR POLLUTION CONTROL LEGISLATION
BEFORE THE SUBCOMMITTEE ON ENVIRONMENTAL POLLUTION
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
JULY 23, 1987

Thank you for the opportunity to testify for the National Clean Air Coalition in favor of the toxic air pollution control provisions of S. 1384, which is cosponsored by a majority of the subcommittee and is contained in Title V of the clean air legislation before you. At the hearing on June 19th, witnesses for the Coalition, for local citizen organizations from around the country, and for state and local governments all testified to the magnitude of the public health and environmental danger from toxic air pollutants and to the urgent need for this legislation.

Let me summarize just a few statistics from that testimony.

- Emissions: Nationwide, literally billions of pounds of toxic compounds are emitted into the air each year, exposing virtually every American. In just two areas of southern Louisiana, more than 196 million pounds of chemical releases were permitted last year.

- Cancer and Other Health Effects. Nationwide, "routine" releases of just 15 to 45 substances cause up to 1700 cancer cases each year, according to the EPA. In Los Angeles alone, just 12 air pollutants are projected to cause up to 220 cancer cases per year, according to the South Coast Air Quality Management District. Toxic emissions cause an untold number of neurological, immunological, reproductive, and other ills.

- Accidents: An EPA study recorded almost 7000 chemical accidents between 1980 and 1985, killing 138 people, injuring more than 4700, and causing the evacuation of more than 200,000 people. Accident rates may be going even higher -- more than 12,000 releases to air, water, and ground were reported to the National Response Center in 1986.

- Environmental Damage: Toxic air pollutants are also contaminating the natural environment, killing and injuring aquatic life, and indirectly threatening human health. Hundreds of tons of toxic chemicals are

> deposited in the Great Lakes each year from air pollution. Dioxins, dibenzofurans, and pesticides such as toxaphene have been found in isolated lakes located hundreds of miles from any land source.

Despite the magnitude of these health threats, the Environmental Protection Agency has managed to regulate only a handful of the offending chemicals. The dismal record of the past 17 years demonstrates that it is not enough to provide the Executive Branch with a public health mandate and the authority to carry it out. If the public health is to be protected, it is necessary to be more specific and directive.

Over the past 17 years we have learned a lot about toxic chemicals. Based on this experience, we can outline the needed elements of a sound program to protect Americans from toxic air pollutants. They are as follows.

First, the program should assure that the presently available technological means of controlling toxic emissions are put in place as rapidly as possible. When known technologies could eliminate major threats to public health, it is inexcusable to delay their application so that bureaucrats can calculate more closely the precise size of the risk people face.

Second, the program should be structured to provide pressure for the development and use of new means to attain the appropriate public health goal --- full protection against health threats from airborne toxic chemicals that remain after application of today's technology. Better emission controls, closed manufacturing process, and non-toxic substitutes for toxic materials will not be commercialized unless the Clean Air Act continues to supply legal incentives for eliminating public exposure to airborne toxic chemicals.

Third, the law should require a program to protect our people from the dangers of sudden, catastrophic releases of toxic chemicals. Two and a half years after the catastrophe at Bhopal, it is shameful that this nation still does not have a regulatory strategy for preventing sudden releases of toxic chemicals into the air.

Finally, to close the loop on catastrophic releases, there is a need to create a cadre of federal investigators, analogous to the National Transportation Safety Board, to learn what went wrong when a catastrophic release occurs and make recommendations to the EPA about how to prevent future occurrences at other locations.

These four elements form the structure of S. 1384, which is incorporated as Title V of the draft before you. This draft is not perfect, as we will outline in greater detail below. But it embodies the basic elements of a sound national air toxics policy, and for that reason the National Clean Air Coalition strongly supports it. The legislation comprehensively amends the Clean Air Act to give EPA specific responsibilities for curbing the full spectrum of toxic air releases. It addresses three critical areas:

1. "Best Technology" Standards for Toxic Air Pollutants: Title V requires "best available control technology" (BACT) standards for major sources of 311 toxic air pollutants listed under the right-to-know provisions of the Superfund law.

According to EPA, more than half the listed substances are carcinogens; many others are acutely or chronically toxic. "BACT" is defined as the greatest reductions achievable, including reductions from chemical substitution, process changes, and "end-of-pipe" controls. Title V also directs EPA to reduce emissions from smaller sources and vehicles that create the toxic "urban soup" by 55% over 10 years.

2. Health-Based Standards for Hazardous Air Pollutants: Title V requires health-based standards for 19 hazardous air pollutants -- 8 that are partially regulated under the existing law and 11 additional cancer-causing agents which EPA says it "intends" to regulate but has not. Title V prohibits EPA from compromising these standards with cost-benefit analyses that tolerate loss of life to hold down industry costs. It instructs EPA to protect against environmental damage as well as public health hazards. Finally, it instructs EPA to review additional candidate hazardous air pollutants each year and to order industry-funded safety testing if needed.

3. Preventing Chemical Accidents: Since the Bhopal catastrophe, EPA has done virtually nothing to prevent industrial chemical accidents and releases in the United States. Title V builds on the emergency response and right-to-know requirements of the 1986 Superfund amendments by requiring EPA action to prevent accidents, not just respond to them. The legislation establishes an objective of no releases of extremely hazardous chemicals. It requires facilities handling extremely hazardous substances to undertake hazard assessments and annual safety

audits, and to make them available to insurers, lenders, stockholders, governmental authorities, and the public. It directs EPA to establish equipment and operational standards to prevent accidental releases. It enhances reporting requirements and provides a monetary penalty for releases, which will harness basic economics as further encouragement for release prevention.

Perhaps most important, Title V establishes an independent Chemical Safety and Hazards Investigation Board to investigate accidents and recommend measures to prevent recurrences. The value of a similar institution, the National Transportation Safety Board, has been proved many times over in improved airline safety. A similar independent investigative agency is needed for chemical plant safety as well.

Because these requirements and authorities are sorely needed to protect public health and welfare, the National Clean Air Coalition urges the Subcommittee to complete work on the clean air bill before you by adopting Title V in next week's mark-up. Our purposes today are two-fold. First, we want to respond to the exaggerated and misplaced objections being voiced by EPA and the chemicals industry. Second, we want to address seven specific improvements needed in the legislation to give it the full scope and means to effectively combat toxic air pollution.

EPA-Industry Criticisms of Title V Should Be Rejected

EPA and industry offer a remarkably similar defense of the status quo and criticism of Title V. EPA's objections can be summarized in this way: "It's not my job; it's too complicated; we haven't got enough staff; not enough people are dying; give us the flexibility to develop our own program." Their defense is really an admission of failure dressed up to sound like a record of accomplishment. As Administrator Thomas testified yesterday, in 17 years, EPA has regulated just seven hazardous pollutants from factory sources and only two toxic pollutants from motor vehicles. EPA has done nothing at all to lessen the danger of catastrophic accidents.

EPA literally invites us to "wait until next year" for more regulation under Section 112. EPA also recites a list of still mostly unimplemented measures under consideration under other parts of the Clean Air Act or other laws. These measures, while desirable, are limited and would be no substitute for a comprehensive program even if we had confidence they would be employed fully. Based on the record, we would be foolish to accept these assurances.

EPA and industry reiterate their much criticized preference for shifting responsibility for toxic pollutant control decisions onto the backs of state and local governments. Protecting the health of the American people is a national job and a federal responsibility. Since when is the protection of individuals at greatly elevated danger of cancer not "a matter of national significance"?

Individual state and local governments are have been forced by public necessity to become leaders in implementing toxic air pollution controls, but they have neither the resources nor the political leverage to go head-to-head with industries operating in a national economy. Without federal standards they are vulnerable to environmental blackmail.

EPA continues to offer tired and vague objections to the complexity or workload of carrying out these amendments. This is the same refrain this Committee has heard regarding every environmental initiative in recent years. We will be happy to join EPA in seeking more resources to carry out its responsibilities. But that is a separate argument. Surely EPA is not arguing that we cannot as a nation afford the governmental cost of protecting public health.

EPA complains the accident prevention provisions of Title V duplicate last year's Superfund provisions. They do not. The SARA amendments require very limited information gathering. Title V gives EPA authority to prevent accidents.

EPA argues for "flexibility" to base all its decisions on cost-benefit analyses in which human life and health are treated as mere commodities like wood or plastic. That sort of flexibility has resulted in proposed standards for coke oven emissions which leave hundreds of people with greater than a 1-in-100 chance of getting cancer -- even though EPA's own studies show that better controls are available? This is not an isolated example. EPA has made a string of decisions abandoning heavily exposed persons to permanent danger because, in the cold calculus of cost-benefit analysis, there aren't enough "benefits" to warrant saving their lives. EPA's complaints of legislative "overkill" are no comfort to the people who are being killed by toxic pollutant exposure.

The legislation before you, like the current law, starts from a simple premise: the American people -- all of them -- have a right to freedom from involuntary exposure to chemicals that can cause cancer or other serious diseases. The best scientific evidence suggests there is no safe level of exposure to carcinogens and certain other toxins. Therefore, the aim of toxic air pollutant legislation must be to eliminate those exposures, either by fully containing them in use, or by substituting safe chemicals. That "technology-forcing" objective is the aim of the current law, though repeatedly violated by EPA, and it is the aim this legislation would restore.

The legislation is a compromise, however. It recognizes the cleanup or substitution will take time for some sources. Time will be necessary to develop and deploy improved technology, new processes, and alternative substances. The legislation establishes a timetable for sources to come into compliance. It includes provisions requiring proponents of delay to show "serious economic hardship" -- we think that is a completely appropriate prerequisite for a source seeking to delay protecting public health. The EPA, however, apparently objects to any provisions that refuse to accept the limits of the technology and economics of the moment.

Rather than relying too little on risk assessments, we think the legislation still relies on them too much. We agree with EPA that the concept of "negligible" risk, which appears in several places in the hazardous air pollutant provisions, is too vague. Our concern, however, is the opposite of EPA's: That the Agency will continue to deem outrageously high cancer risks "negligible" and to ignore other health and environmental hazards altogether. The right remedy is not EPA's proposal to rely more on risk assessments, but to remove the concept from the legislation altogether.

A better approach to closing the gap between the compromises of the moment and the ultimate objective of eliminating exposure to carcinogens and other non-threshold pollutants. In cases where a source cannot accomplish the full necessary reduction with today's BACT, the legislation should allow EPA, if the state and local government concur, to give an individual source a maximum of 10 years to comply, with a requirement for proportional interim emission reductions in each intervening year. This approach would give sources adequate lead time and incentives to make the changes in their equipment or processes sufficient to do their business without endangering anyone's health.

The Congress must not accept the excuses and objections of EPA and industry. You must act where they have failed.

Improvements Needed in the Bill

Title V does need improvement. While we have recommended additional, technical changes to the Subcommittee staff, we want to bring seven main points to your attention today.

1. Include Dioxin and Related Compounds as Hazardous Pollutants. The list of hazardous air pollutants under the bill leaves out an extremely important group of air pollutants with the capacity to cause cancer as well as reproductive and

immunological illnesses: That group is polycyclic organic matter (POM), a family of compounds including dioxins and difurans. EPA affirmed in 1984 that POM compounds are carcinogenic. And just this month, in its report to Congress on incinerators, EPA reiterated the cancer hazard from dioxin and difuran emissions. This group of compounds should be included on the list of hazardous air pollutants.

2. Regulate Toxic Air Pollutants by Classes, Not Just the SARA §313 Pollutants. The toxic air pollutant list included in subsection (d) is drawn from Section 313 of last year's Superfund amendments. While we support the use of this list as a basis for "BACT" standards, a better approach would be to require standards also for selected pollutant classes which contain the bulk of the known toxic air pollutants. This pollutant-class approach would assure coverage of not only the "bad actors" specifically listed under §313, but also their chemical cousins most likely to share similar toxic properties. Since subsection (d) would allow for delisting any specific member of the class which when properly tested proves harmless, the makers and users of safe substances are protected from unnecessary controls.

We propose an initial list of five classes for inclusion in the legislation: Four targeted subgroups of VOCs (aromatic hydrocarbons, diolefins, aldehydes, and halogenated hydrocarbons) and a fifth class consisting of trace metals and elements.

3. Phase Out Asbestos. Asbestos is a known killer of tens of thousands. Even though several sources of asbestos are regulated under the current Section 112, it still has many uses

that result in emissions to the air. An EPA proposal to phase out asbestos products over 10 years languishes in the administration. The legislation should include a specific provision to make the phase out law.

4. Phase Down Toxic Solvent Emissions. Toxic materials in solvents, coatings, pesticides, and other products are emitted into the air in million -- even billion -- pound quantities each year. Control technology can reduce emissions, but the ultimate answer is to develop and deploy safer chemicals and processes. Thanks to initiatives in the late 1970s by EPA and the states, water-based materials have been developed for many solvent and coating operations currently using cancer-causing or otherwise toxic substances. But despite the availability of these substitutes, industry foot-dragging and EPA retreat have prevented them from being broadly deployed.

To restore the emphasis on substituting away from dangerous compounds, the legislation should provide for an orderly phase down of toxic solvents by 50% over 10 years. With time for transition, industries will have incentives to conserve and recycle these substances rather than release them into the air, and to develop and deploy safe substitutes.

5. Give Solvent Suppliers Compliance Responsibilities. To assist in implementing the bill's area source provisions and the solvent phase-down, the legislation should give the suppliers of solvents defined responsibilities to assure compliance by the solvent users. Solvent suppliers make and distribute these substances knowing that they will end up in our air. Public

health protection from these emissions should be counted, at least in part, as a cost of their doing business.

6. Roll Back the Level of Benzene and Related Toxins in Gasoline. The dominant sources of public exposure to benzene -- a known human carcinogen -- are vehicle refueling and tailpipe emissions (catalytic converters are not able to eliminate benzene entirely). Higher levels are found only in the shadow of major sources such as oil refineries. In Los Angeles alone, urban air benzene levels are projected to cause as many as 100 cancer cases a year. EPA data show that the levels of benzene and two companion substances (toluene and xylenes) added to gasoline have been steadily rising. These chemicals -- mixed together as an additive called "BTX" -- are now present in gasoline at about twice the concentration of a decade ago. Benzene, as I said, is a known carcinogen; toluene and xylenes are both suspect carcinogens.

A provision to roll back the levels of benzene, toluene, and xylenes in gasoline to the lower levels prevalent a decade ago was introduced by Senator Durenberger on June 19, but it is not in the Subcommittee mark-up vehicle. It should be included in the legislation.

7. Shorten Unreasonably Long Deadlines for Setting Standards. The bill allows 10 years for EPA to write standards for toxic air pollutants, plus five years for sources to comply. This is far too long. The public should not have to wait 15 more years until technology to curb toxic air releases is in place. EPA should be required to issue the standards in no more than

five years. The bill also triples the time given EPA to write hazardous air pollutant standards (from one year to three). The National Clean Air Coalition believes two years is sufficient.

In conclusion, the National Clean Air Coalition urges the Subcommittee not to accept the counsel of those who would have you do nothing about toxic pollution or of those who acknowledge the need to protect the public health and welfare from these substances but nonetheless wring their hands at the prospect of action. We urge you to adopt Title V with the changes we have recommended at the mark-up next week.

I will be happy to answer any questions you may have.

TESTIMONY OF DONALD A. DEIESO, Ph.D.

ASSISTANT COMMISSIONER

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

before the

U.S. SENATE SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

COMMITTEE ON ENVIRONMENT & PUBLIC WORKS

WASHINGTON D.C.

JULY 23, 1987

I appreciate this opportunity to share with you New Jersey's position on those components of the Clean Air Act which you are addressing this evening. On an earlier occasion I presented the state's position on ozone attainment. Tonight I will address another important issue -- municipal waste incineration. I would also like to take this opportunity to very briefly comment on several air toxics issues.

I. MUNICIPAL WASTE INCINERATORS

Legislation for control of air contaminant emissions from municipal waste incineration is appropriate and timely. EPA is in the process of finalizing its Report to Congress on Municipal Waste Combustion and has concluded that additional national regulation of municipal waste combustion is necessary. The proposed legislation under consideration today would require EPA to promulgate the long-overdue national regulations on this critical issue. Absent a comprehensive national regulation, states like New Jersey -- while pleased to take the lead on regulating air pollution from municipal waste combustion -- have had no choice but to develop state requirements for these facilities. Regrettably, this has resulted in a national mosaic of different state regulations and strategies for controlling these facilities.

Today, there is no doubt that our position would be strengthened with federal regulations in place. While New Jersey has no existing major municipal waste combustion facilities, we have, however, permitted several large resource recovery facilities, one of which is under construction. It is likely that over twelve large facilities will be constructed in our state during the next five years resulting in a capital expenditure of over $3 billion. And although New Jersey will not be faced with the problem of retrofitting old facilities with modern air pollution control technology, we have considerable interest in the standard-setting requirement of legislation in this area as well.

All facilities planned for New Jersey will be equipped with air pollution control technology which incorporates state-of-the-art in air pollution control. I have supplied copies of New Jersey's Air Pollution Control Guidelines for Resource Recovery Facilities and Incinerators and two addendums. These guidelines define maximum air contaminant emission rates and minimum design standards for New Jersey facilities. I am pleased to say that New Jersey has the most stringent, most comprehensive resource recovery control program of any state. And for this reason I am confident that new facilities in New

Jersey will comply with any national rulemaking. Notwithstanding this, such national rulemaking will be of benefit to New Jersey, as well as to other states with less stringent air pollution control requirements. If for no other reason, national regulations would increase public confidence in the environmental acceptability of municipal waste combustion facilities.

H.R. 2516 and the Senate draft bills are generally consistent with air pollution control requirements for municipal waste combustion facilities in New Jersey. Today we would like to develop the highlights of these bills and offer some general recommendations for amendment.

Also, let me indicate that I have offered a list of specific technical recommendations on one of the Committee working papers we received last week. We would be pleased to review and comment on other drafts as they are developed.

1. Covered Pollutants

We believe that it is very reasonable to require EPA to develop standards of performance for the twelve or so air pollutants specified in the bill.

1. Covered Pollutants (cont.)

Although New Jersey sets limits for 17 pollutants in its permits for solid waste incinerators, national performance standards could focus on a shorter list and still be quite effective. In addition to those listed in the working paper we reviewed, carbon monoxide total nonmethane hydrocarbons, and hydrochloric acid should be included in your consideration. With respect to dioxins and furans, New Jersey uses 2,3,7,8-TCDD as the surrogate for these types of highly toxic chlorinated substances and sets facility specific emission standards for 2,3,7,8-TCDD.

2. Performance Standards

Congress should refrain from setting performance standards in legislation. This is EPA's proper role. Ensuring that performance standards are achievable and fully defined is best left to the administrative rulemaking process. The need for flexibility, thorough scientific review, and case of revision all favor the administrative process.

3. Solid Waste Management Plan - State Authority

We concur that each local jurisdiction should have a solid waste management plan and we require this in New Jersey. However, states must continue to have the authority to permit, and, in fact, mandate facilities when the local jurisdiction either fails to develop or implement an adequate solid waste management plan. Any legislation should clarify such state authority, and states should not be preempted on permit issuance when a local jurisdiction refuses to revise its solid waste management plan to include an incinerator.

4. Post Construction Monitoring

We strongly oppose the intention of the bill in this matter. Post construction environmental and tissue monitoring to detect changes would be difficult to design and implement, and the usefulness of the data would be questionable. Until "statistically significant levels" are defined, a "program to detect any changes in the environmental or human tissues concentration" is not meaningful. While worthy of significant research, we know far too little about this matter to impose a hard and firm requirement.

5. Superfund Amendment and Reauthorization Act of 1986-Reporting

The intent of section 313 of SARA is to require mass balances for 329 toxic chemicals if used by manufacturing industries in quantities over specified amounts, such as 10,000 pounds per year. Requiring mass balances for any of these substances in the municipal solid waste stream, regardless of quantity, is inappropriate. Many of these substances may be in the waste stream in trace quantities and not as pure substances. In place of this section, Congress should require EPA to first identify those substances, like mercury, for which a mass balance around the MSW incinerator is important. Once the specific substances are identified, such mass balances should be required of operators pursuant to EPA rulemaking.

6. Continuous Monitoring

We strongly support the requirement that key operating parameters and emissions be continuously monitored. New Jersey routinely includes such requirements as permit conditions for carbon monoxide, oxygen, temperature, opacity, nitrogen oxides, and sulfur dioxide. We also require other continuous monitoring of facility specific parameters as appropriate.

7. Periodic Monitoring (stack tests)

New Jersey requires comprehensive tests every five years, and less comprehensive tests (particulates, metals and hydrochloric acid) every year. More frequent testing should be required for those pollutants for which the continuous emission monitors are not a good indicator of performance.

The comprehensive test requirements should be for air contaminants for which performance standards are set.

8. Operator Training and Certification

This is an important requirement which we strongly support. A facility is only as good as its operators. There must be a baseline federal training and certification program. Provisions for the authority to delegate operator training and certification to state programs is also appropriate.

9. Periodic Permit Reevaluation

An expiration date on the permit, unless reissued, is appropriate. New Jersey has a similar procedure for 5-year operating certificates, which are renewed for another 5 years if all rules and conditions of the original construction permit continue to be met.

II. AIR TOXICS

New Jersey strongly supports the provisions of Senate Bill 13841, originally sponsored by Senators Durenberger and Lautenberg, now incorporated as an amendment to Section 112 of the Clean Air Act, Title 5 entitled "Hazardous and Toxic Air Pollutants." In the last several years EPA has failed to act in implementing Section 112. As a result, public pressure has demanded that states go their own way in developing toxic air pollution programs. State and local programs have responded and evolved a number of criteria some of which are helpful in setting a national program. We believe the Senate Bill has drawn upon many of the best aspects of these programs, including New Jersey's. The major provisions include: 1) a strong technology based approach for controlling hazardous, toxic and extremely hazardous emissions, 2) a program to address small area-wide sources, 3) a strict timetable for EPA decision making, 4) a mandatory first cut list for hazardous, toxic and extremely hazardous air pollutants, and 5) stringent emission control standards designed to protect the public health with an ample margin of safety.

New Jersey believes the concept is workable and provides EPA with the necessary flexibility to make sound technical decisions while allowing the states to request full or partial delegation in accordance with national guidelines.

In the wake of Bhopal and a dozen or more catastrophic releases of toxic substances in New Jersey, the state enacted the Toxic Catastrophe Prevention Act - the first of its kind in the U.S. Our experience in this area leads us to support the establishment of programs to prevent both accidental and non-accidental releases of extremely hazardous pollutants into the environment.

In establishing a list of extremely hazardous air pollutants, we urge that a clear distinction be made between those substances that may cause an acute health effect as a result of an accidental release as compared to those that cause a chronic health effect from non-accidental releases. The control strategies and the resultant control programs may be entirely different. A list of chemicals which may cause catastrophic effects as a result of an accidental release must be identified by a definitive process which would consider toxicity, release potentials, etc. This list must be clearly focused on those chemicals which have the ability to cause profound consequences through a one-time release. Any such list of substances should be well-studied, well-documented and focused to meet the specific objectives of accidental release prevention. Incorporating the list identified in Section 302 of SARA Title III will dilute the resources necessary to implement an effective accidental release prevention program. Though it is swift and simple to assign authority to this list, an unquestioning acceptance of it belittles the importance and vision of a program designed to prevent releases and minimize consequences of releases of extremely hazardous substances.

Several states, in addition to New Jersey, have already implemented chemical accidental release programs. Any accidental release prevention legislation must allow states the flexibility to tailor programs to meet their specific needs. We therefore suggest that strong non-preemptive language be included as part of this legislation, allowing states to continue the efforts they have already put in place.

APPENDICES -- NEW JERSEY TECHNICAL COMMENTS

I. MUNICIPAL WASTE INCINERATION
II. SUDDEN AND NON-SUDDEN RELEASES

TITLE VI - MUNICIPAL WASTE INCINERATION
7/17 SENATOR STAFFORD VERSION

139 (a) Standards for New or Modified Facilities

139 (a)(1) Covered Pollutants

General - The concept of developing standards of performance for about 12 air pollutants and considering the degree of control that would result on other contaminants properly focuses EPA's efforts. Following are technical recommendations concerning specific provisions of this section:

1. Add carbon monoxide and nonmethane hydrocarbons (NMHC) as air pollutants for which performance standards should be set.

2. Replace acid gases with hydrochloric acid. The other major acid gases are sulfur dioxide and nitrogen oxides, which are already on the list for performance standards.

3. Standards of performance and siting requirements are separate regulatory concepts. Delete the reference to siting as part of the performance requirements, or provide an additional section on siting requirements. Siting is probably best left to the local process of developing a solid waste management plan.

4. Change "include" to "consider". Such standards shall consider methods and technologies for removal..."

5. It is appropriate that the effect on facility residues be considered when setting performance standards. For the purpose of clarity, delete "or ash" and add a separate sentence stating, "The quantity and quality of the control device residues should be considered when promulgating performance standards."

6. Clarify which list of pollutants will be subject to periodic testing: the list of performance standards; or the list of pollutants for which "the Administrator will take into account the degree of reduction which such standards achieve". We recommend the list of performance standards be the pollutants for which periodic testing is required. However, the initial facility tests could include the more comprehensive list of pollutants for research and development purposes.

139 (a)(2)(A)&(B) - Delete (B) since it is inappropriate for EPA to adopt performance standards which are not achievable. This subsection is excerpted from EPA's definition of Lowest Achievable Emission Rate (LAER).

LAER requires emission limitations that reflect standards in state regulations unless the applicant for a new facility demonstrates the state standards are not achievable. While incorporating such a requirement in the permitting process is appropriate, it is not workable for the baseline standards this bill would require EPA to set. Subsection (a)(2)(A), requiring the greatest degree of emission limitation achieved in practice, should be sufficient for baseline national emission limitations. Subsection (a)(2)(B) should be deleted.

"Available emissions control technologies"

1. "4 field" electrostatic precipitator is too specific for legislation.

2. Availability of listed technologies should not mandate their use. In particular, the nitrogen oxide control devices are still in the development stages and may or may not be appropriate.

3. There should be some provision for the best available combination of control technologies. A control technology might be best for some air contaminants, but a poor choice for others. The best available control technologies should provide the best overall control of air contamination.

139 (a)(5)(A) and (B) - This subsection specifies numerous technical standards, many of which are overly optimistic, some of which are impossible to maintain continuously, and others which are technically incomplete or unclear. Such performance standards should be made the responsibility of EPA as per 139 (a)(1). Following is a partial list of technical problems with 139 (a)(5)(A) and (B):

1. Thermal destruction of combustible materials - 99.95% - unclear as to method of determination.

2. Post-combustion emissions of hydrocarbons - 99.99% - unclear as to method of determination - difficult to achieve for all substances. A performance specification on emission concentration is better.

3. Post-combustion emissions of fine particulates - 99.99% - may be impossible to achieve continuously with present technology. A performance specification on emission concentration is better.

4. Carbon monoxide - 50 ppm, 8 hr avg. - optimistic for long term operation.

5. Particulates - 0.010 gr/dscf 12% CO_2 - optimistic; One test at the Oregon facility with a baghouse was over 0.010. New Jersey uses 0.015. Also, 7% oxygen is now used in place of 12% CO_2 as the correction factor for excess air.

6. Sulfur dioxide - 10 ppm - unclear (dry? % O_2?), impossible to achieve continuously.

7. Hydrochloric acid - 30 ppm - unclear (dry?, % O_2?), optimistic if PVC plastic content of waste continues to increase and spray driers or dry scrubbers are used for control.

8. 1800°F for 2 seconds fully mixed height - may be impossible to maintain and cause slagging in the convection section of the furnace. New Jersey requires 1500°F (1600°F 90% of the time) 1 second downstream of secondary air injection.

139 (b) Management Plans

1. "Cost effective" criteria must be balanced with the health and conservation criteria. The health criteria should carry the most weight. Some additional discussion of the balancing of the three listed criteria would be useful.

2. The language of this subsection appears to give the local jurisdiction a siting veto. There should be no local override of state authority to issue permits.

   We concur that each jurisdiction should have a solid waste management plan. However, states must continue to have the authority to permit, and in fact mandate, facilities when the local jurisdiction either fails to develop or implement an adequate solid waste management plan. This subsection should be amended to clarify such state authority. States should not be preempted on permit issuance when a local jurisdiction refuses to revise its solid waste management plan. Section 139 (1)(2) may be sufficient to avoid such preemption but, section 139 (b) should also be clarified as to state and federal authority to issue permits.

3. The new section on separation of permitting and operating agencies is good, but not clear on its scope. While a single state agency should not issue a permit to itself for operation of a facility, a state environmental protection agency is responsible in part for the design of such facilities by virtue of its function to set design standards. The former should be prohibited, not the latter.

139 (c)(1) - This subsection should not be necessary if the Administrator promulgates the required emission standards. However, based on EPA's past performance, the fall back procedure in this subsection is prudent.

We suggest that the allowable levels should be based on the best emission test results "prior to promulgation" rather than in 1987.

Also, there should be recognition that picking the lowest rate for each pollutant may result in an impossible or impractical combination of control devices. Therefore, we suggest that the following addition be made to subsection (c)(2). "Where the Administrator determines that the combination of such emission limitations would result in an infeasible combination of air pollution control technologies, the Administrator shall also publish alternative emission limitations which provide for the best overall control of air contaminants."

139 (d) - For existing units, allow the Administrator the option of promulgating several timetables for compliance, taking into account the various factors.

139 (e)(1) - Testing of air contaminant emission should be in the stack in order to avoid flow disruptions at the tip of the stack. This is necessary for the safety of the testers and to obtain accurate results. Consequently, we recommend that the following be deleted:

> "at the point at which such emissions are emitted into the ambient air" "and other".

139 (e)2 - Detection of Impacts

This new subsection requires post construction environmental and tissue monitoring. While the goal appears worthwhile, implementation may be difficult, expensive, and the data of questionable validity.

1. Delete "halogenated hydrocarbons" because there are thousands of these.
2. Replace "Governor" with "Administrator". It is inappropriate for each state to attempt to design environmental and human tissue monitoring programs.
3. Until "statistically significant levels" are defined a "program to detect any changes in the environmental or human tissues concentration" is not meaningful. The former must precede the latter. Therefore, delete the sentence, "Until and unless such rules are promulgated and effective, the owner or operator of each such unit is required to establish and operate a program to detect any changes in the environmental or human tissue concentrations of lead, mercury, cadmium, halogenated hydrocarbons, and dioxins."

139 (f) Reports

The intent of section 313 of SARA is to require mass balances for 329 toxic chemicals if used by manufacturing industries in quantities over specified amounts, such as 10,000 pounds per year. Section 139 (f) would require mass balances for any of these substances in the municipal solid waste stream, regardless of quantity. This is inappropriate for many of these substances which may be in the waste stream in trace quantities and not as pure substances. In place of this section, Congress should require EPA to first identify those substances, like mercury, for which a mass balance around the MSW incinerator is important and then require such mass balances be done by the operators pursuant to EPA rulemaking.

139 (h)(1) Continuous Monitoring

1. Hydrogen chloride (HCl) monitoring should not be mandatory if a facility can show that monitoring and control of sulfur dioxide will also guarantee low HCl levels. New Jersey includes such a provision in its permit conditions for MSW incineration facilities.

2. Carbon dioxide monitoring is unnecessary. Oxygen is sufficient. Carbon dioxide can be correlated to oxygen content, which is the more important of these two parameters to monitor.

3. The temperature of the particulate control device is more important than the stack temperature. This temperature would be an indication of the potential for condensation of various contaminants and removal by the particulate control device. Consequently, "stack temperature" should be replaced with "temperature of the particulate control device".

4. "Furnace temperature" should be replaced with "secondary combustion zone temperature" or similar language which better defines a temperature of relevance for air pollution control purposes.

139 (h) 2 Periodic Monitoring

1. Clarify that emissions for which there are performance standards are subject to periodic monitoring. See comment 6 on 139 (a)(1).

2. Stack testing every six months for all air contaminants which are not continuously monitored is excessive. New Jersey requires comprehensive tests every five years, and less comprehensive tests (particulates, metals and hydrochloric acid) every year. The more frequent testing should be for those pollutants for which the continuous emission monitors are not a good indicator of performance.

139 (j) Operator Training and Certification

This is an important requirement which we strongly support. A facility is only as good as its operators.

Delete "model state" to make it clear that there must be a baseline federal training and certification program. Subsection 139 (j)(2) on delegation of operator training and certification to state programs adequately covers the state role.

139 (k) Permit Review - The 5 year expiration date on the permit, unless reissued, is appropriate. New Jersey has a similar procedure for 5 year operating certificates, which are renewed for another 5 years if all rules and conditions of the original construction permit continue to be met.

139 (l)(2) Relationship to Other Requirements

This subsection states that other state and federal law are not preempted by this act. This is appropriate. Also, see the comment on 139 (b) recommending clarification that state issuance of permits may override local refusal to modify a solid waste management plan to include an incinerator.

139 (p) Definition

139 (p)(1)

The reason for and consequence of the inclusion of "sanitary waste in septic tanks" in the definition of "municipal waste combustion unit" is unclear. Normally, septic waste is not burned in a municipal waste incinerator. Usually it is treated at a sewage treatment plant, and the resulting sewage sludge is burned in a sewage sludge incinerator. Septic waste, unless processed into a form that can be easily burned in a MSW incinerator, should be prohibited from MSW incinerators.

139 (p)(2)

Change "substantially completed" to "commenced". By the time a unit under construction is built, the requirements for existing units will be effective. Also, it would be difficult and time consuming to define and interpret "substantially completed". The term "commenced" is already in use by the EPA.

139 (p)(4) Enforceable Solid Waste Management Plan

(D) The requirement for "least threat" treatment storage and disposal inappropriately overrides all other criteria. Other criteria should have at least some weight. Sometimes there are insignificant differences in cost, technical feasibility and other criteria. Inserting "negligible or" before "the least threat" would make this section more reasonable.

(E) "The elimination, to the maximum degree feasible of wastes" is an appropriate goal, but an inappropriate provision to have the force and effect of law. The elimination or reduction of waste "to the maximum degree reasonable" would be more appropriate, but still unenforceable.

SUDDEN AND NON-SUDDEN RELEASES
TECHNICAL COMMENTS

We support the objective of establishing regulations and programs to prevent the release and to minimize the consequences of releases of extremely hazardous air pollutants. The following are comments on Section 112(e) and (f) of the amendments to the Clean Air Act. Two major issues: the list of extremely hazardous substances and existing state programs, are addressed first.

A list of extremely hazardous substances must be based on study and documentation of scientific evidence in order to meet the objective of these amendments. To list chemicals which do not meet the definition of extremely hazardous substances will burden the resources necessary for effective implementation of this objective. We believe that adopting the list required by section 302 of the Emergency Planning and Right-to-Know Act of 1986 by reference will circumvent the need for study and documentation of substances which may be released in concentrations that may be reasonably anticipated to cause acute toxic effects in humans. Though it is swift and simple to assign authority to this list, an unquestioning acceptance of it belittles the importance and vision of a program designed to prevent releases and minimize consequences of releases of extremely hazardous substances.

Also regarding the list of extremely hazardous substances, we believe more emphasis is necessary on the conditions which can create toxic concentrations in the atmosphere. The description of an extremely hazardous substance includes the phrase "may...be released as air pollutants in concentrations...". Is it a correct interpretation that a release quantity and understanding of dispersion are implied here? We believe that these factors are also essential to a clear focus on extremely hazardous substances.

Governor Thomas Kean of New Jersey signed into law the Toxic Catastrophe Prevention Act (TCPA) on January 8, 1986. The purpose of this legislation is identical to that of the proposed amendments. New Jersey has started implementing that program. We believe that states that have already implemented chemical accidental release prevention programs must be allowed to continue their efforts toward release prevention without threat of preemption by federal law. We urge your consideration of strong language to assure this. Another mechanism for achieving this could be a waiver provision. The following language provides an example:

> The Administrator shall, after notice and opportunity for public hearing; waive application of sections (e) and (f) to any state which has adopted legislation for the prevention of accidental releases and minimization of the consequences of accidental releases of extremely hazardous substances prior to January 1, 1987, if the State determines that the State standards will be, in the aggregate, at least as protective of public health and welfare as application of Federal standards.

This is modeled after the waiver provided under section 209 of the Clean Air Act Amendments of 1977.

New Jersey agrees that hazard assessments are essential to preventing releases and minimizing their consequences. The requirements for a hazard assessment is an apparent meshing of the qualitative hazard analysis and quantitative risk assessment included in the regulations drafted pursuant to the TCPA. More importantly, the focus on hazard assessments alone and the absence of hazard management are of concern to the State. The history of accidents in industrial settings indicates that routine operations are frequently associated with accidents. We suggest that the inclusion of requirements for safety reviews, standard operating procedures, preventive maintenance programs, operator training, accident investigations and emergency response are necessary to complete the objective of these amendments. To this end, we believe the provisions for release detection, prevention and correction requirements should be given proper emphasis and expanded to meet the objective of the draft amendments. These provisions should identify the elements of a program at a chemical facility designed to prevent accidental releases and mitigate the consequences of a release. We suggest that hazard assessment be considered part of this program.

Communicating the risks and hazards of technology to people is recognized as difficult and perhaps a monumental task. The provision to make hazard assessments available to the public would provide a dangerously narrow and unbalanced view of the operations of the chemical industry. We recommend that further consideration be given to making hazard assessments available to the public. Along with this public availability comes the responsibility that will fall on states to explain these hazards.

New Jersey also supports the establishment of an independent safety board. We believe the duties of the Board to investigate accidents should include those accidents in which there are permanent disabilities. The duties should also clearly state whether the accidents to be investigated are those in which the community is affected or in which the chemical facility is affected.

It is not clear what is intended by the provisions regarding non-sudden and episodic releases for several reasons. First, the purpose of Section 112(e) . of the draft amendments references accidental releases. Non-sudden and episodic releases which, by implication if not by definition, are certainly not accidental. Second, extremely hazardous substances would now include those reasonably anticipated to cause acute or chronic adverse health effects, but the list referenced is the same as that for only acute toxic effects. Further, the terms annual audit and safety inspection have much more significance than is represented by these provisions. The purpose of locating and correcting all leaks and other routine and episodic release is exactly parallel to existing programs established for petroleum refineries and synthetic organic chemical manufacturers.

These programs are referred to as leak detection, monitoring and repair programs. We recommend that audits and safety inspections, as denoted by use in the chemical industry, be included in a program to prevent accidental or sudden releases. The leak detection, monitoring and repair programs are more appropriate to prevent and mitigate non-sudden and episodic releases.

New Jersey agrees that a fair penalty schedule is necessary to create incentives to owners and operators of chemical facilities to take all measures which will prevent releases. However, we believe that federal and state authority exist to address penalties for releases of extremely hazardous substances. We recommend that this provision focus instead on violations of the provisions of Section 112(e).

It is unclear how the provisions of Section 112(f) would establish state programs to implement the requirements of Section 112(e). First, the guidance would not be issued until 12 months after the date of enactment, but the hazard assessments must also be conducted within 18 months of the date of enactment. Second, the guidance relative to Section 112(e) is limited to registration of all facilities producing, processing, handling or storing any extremely hazardous air pollutant. This guidance should include release detection, prevention and correction requirements if the program is to be effectively delegated.

Finally, we suggest that the activities involving extremely hazardous substances be amended to include generation. Some extremely hazardous substances are generated by the reaction between two substances which may not be extremely hazardous themselves.

Testimony

of

SHEILA M. PRINDIVILLE
Director, Solid Waste Programs
National Solid Wastes Management Association

before

Senate Environment and Public Works Committee
Subcommittee on Environmental Protection

July 23, 1987

I am here today to offer testimony on behalf of the National Solid Wastes Management Association's (NSWMA) Institute of Resource Recovery (IRR).

NSWMA is the trade association for the private sector segment of the waste management industry. NSWMA's 2,700 members encompass the entire spectrum of waste services, ranging from refuse collectors to landfill managers, resource recovery plant operators, commercial hazardous waste managers and transporters, recyclers, and environmental engineers. The IRR consists of those NSWMA members who develop waste-to-energy technologies. Our member companies, both publicly and privately owned, design, construct, and operate resource recovery facilities nationwide.

The Institute welcomes the opportunity afforded by this hearing to comment on the regulation of air emissions from municipal waste combustors. The larger issue of proper disposal of municipal waste is as critical as any environmental issue confronting American society today.

Role of Combustion in Municipal Solid Waste Disposal

Municipal solid waste is the solid refuse generated by residential sources and the non-hazardous solid refuse from industrial and commercial sources. On the average, each person in the United States is directly responsible for the generation of one ton of municipal solid waste each year, and this generation rate appears to be increasing gradually. The concern raised by its disposal is how to provide this essential public service while at the same time assure that environmental and human health concerns are being responsibly addressed.

No single solution will rid us of our wastes. Proper disposal requires a mix of tools. There is no alternative to landfilling an irreducible minimum of the waste stream. At the same time, reduction of the volume of waste can extend the useful life of landfills. Consequently, recycling should be an integral element of a solid waste disposal system wherever possible. The third critical component of solid waste management is processing in municipal waste combustion systems which significantly reduces the volume of waste and simultaneously recovers useful quantities of energy.

Today's waste-to-energy facilities are a far cry from the incinerators of thirty years ago even though the term "incinerator" is sometimes erroneously applied to modern municipal waste combustors. A recent survey identifies 103 facilities in operation, under construction, or in shakedown, and another 72 that are in advanced stages of development. The aggregate design capacity of existing facilities that are operational or in shakedown is 34,564 tons per day, and these plants are operating at 74% of design rate on the average. Thus, approximately ten million tons of solid waste were processed in municipal waste combustors in 1986. By the year 2000, that amount could increase to 37 million tons.

Municipal waste combustion facilities are currently subject to a plethora of state and federal requirements which ensure their environmental safety. Nevertheless, the Institute of Resource Recovery supports the creation of a comprehensive federal regulatory framework for these solid waste disposal facilities both to provide predictability to the waste services industry and confidence for the public. In particular, the IRR supports federal regulations to promote proper disposal of ash residue and to control air emissions from waste-to-energy facilities.

Regulation of Air Emissions from New/Modified Facilities

On July 7, 1987, the U.S. Environmental Protection Agency (EPA) announced its intention to regulate air emissions from new or modified municipal waste combustors under Section 111(b) of the Clean Air Act (CAA). EPA also announced that because it intends to regulate one or more designated pollutants (pollutants not regulated under Section 108-110 or 112), that it would be invoking the requirements of Section 111(d) to regulate existing municipal waste combustors. In addition, on June 26, 1987, EPA defined the operating conditions and control technologies that in Agency's judgment constitute best available control technology for new and modified municipal waste combustors that should be applicable to these facilities when permitted under the Prevention of Significant Deterioration and New Sources Review sections of the CAA until such time as emission standards are developed under 111.

The Institute of Resource Recovery supports this approach because it provides a significant margin of environmental safety while at the same time recognizing the variations both in combustion processes and in composition of municipal solid waste. For example, proper combustion (proper air/fuel mixtures, sufficient temperatures, correct mixing) as measured by CO emissions can minimize the formation of toxic organic compounds. Proper control of particulates - through a combination of either flue gas scrubbers and electrostatic precipitators or flue gas scrubbers and fabric filter baghouses - captures the metals of concern. Acid gases are controlled with various scrubber technologies which, like high-efficiency particulate control, are a standard feature of many new plants. Section 111 allows EPA to address municipal waste combustion facilities as a class of sources and to develop emission ceilings and operating limitations for those parameters which in EPA's judgment provide maximum control of the pollutants of concern.

We believe that emission limitations must be determined by technologies that are both proven and available for the resource recovery industry. We believe that public policy is better served when emission ceilings are proposed as performance standards rather than design standards. Any technology, operations constraint, waste stream control, or a combination thereof, should be allowable so long as it meets its targeted emission ceiling.

The IRR is concerned, however, that EPA is not proposing to have 111 standards in place until 1991. We would encourage Congress to direct EPA to develop standards for resource recovery facilities within some more expeditious time frame. We believe EPA could develop appropriate standards more quickly if it used the process of regulatory negotiation, and, as long ago as last December, we offered to participate in such an effort.

Regulation of Air Emissions from Existing Facilities

Under Section 111(d) and implementing regulations, EPA is required to issue guidelines for existing municipal waste combustors. In its Advanced Notice of Proposed Rulemaking (ANPRM) of July 7, 1987, EPA announced that its guidelines for existing facilities would take into account such relevant factors as the remaining useful life of the plant and the cost of emission controls on a case-by-case basis. The IRR supports that approach. An existing facility should be defined as substantially complete if a permit has been issued, contracts signed, financing secured, and equipment ordered (with cancellation charges of greater than 10% of the total project cost).

Additional Considerations

The resource recovery industry has a major stake in proper operation and maintenance of the plants that it builds. Consequently, we support development by EPA of a model operators' training and certification program that could be adopted by the states. Moreover, while we do not believe it possible for EPA to write a generic operations and maintenance code that would be relevant to the diversity of combustion systems, we are supportive of the states' rights to require submission of a facility operations manual as part of a permit application.

We are also supportive of periodic monitoring of air emissions from resource recovery facilities. We believe that state permits, with appropriate guidance from EPA, are the appropriate vehicles for stipulating emissions and operational monitoring requirements, and the frequency of emissions testing.

Finally, we do not know the full social, environmental, and economic impact of eliminating certain materials from manufacturing; we support the need to explore that option. If there are substances that cannot be tolerated in the environment in any quantity or concentration, then the only realistic management strategy is to prohibit that substance from coming into the possession of consumers. In the United States this has been done in the case of PCBs, DDT, and EDB, for example, by prohibiting the production of those substances. In Sweden, concerns over ambient levels of cadmium have prompted regulators to outlaw uses which would lead to disposal of cadmium-bearing material as a solid waste. Source separation alone will not keep certain pollutants like lead and cadmium out of the solid waste stream. The only alternative may be to prohibit their use in short-lived consumable products. We believe it would be prudent for Congress to mandate and provide resources to EPA to study this approach and work with industry to reduce the use of these materials.

Conclusion

Ultimately, at issue here is the success of our society in dealing with the millions of tons of waste generated each year by our cities. Landfill capacity is dwindling, and modern resource recovery facilities are a means to deal with this situation in an environmentally sound manner. The growing tendency to view these plants as though they themselves generated toxic emissions and wastes can impede a community's ability to dispose of its solid waste properly by increasing the cost disproportionately to real environmental impact.

EPA currently has the statutory authority to determine through regulatory procedures which pollutants from resource recovery plants should be subject to a new source performance standard on a national basis, which should be controlled, which should be monitored, what surrogates are most applicable, and which should be controlled and monitored based on peculiar local requirements. EPA has expressed its intention to use the authorities of Section 111 of the CAA to make those determinations. EPA should be directed to move as quickly as is reasonable to regulate air emissions from resource recovery facilities as they have proposed.

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Testimony Delivered Before the

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

on behalf of the

U.S. CONFERENCE OF MAYORS

by

JOHN E. FLAHERTY, JR.
Deputy Mayor
Philadelphia, PA

accompanied by

CHARLES MARTIN
Executive Director
Bath Brunswick, Maine
Refuse Disposal District

July 24, 1987

Mr. Chairman, I am John E. Flaherty, Jr., Deputy Mayor of the City of Philadelphia, testifying on behalf of the U.S. Conference of Mayors which represents over 800 cities nationally. I am accompanied today by Charles Martin, Executive Director of the Bath Brunswick Maine Refuse Disposal District, and Trustee of the U.S. Conference of Mayors National Resource Recovery Association. The Conference formed the Association in 1982 to address the urgent need to develop alternative means of solid waste disposal including waste-to-energy facilities and recycling programs.

From the outset, Mr. Chairman, we have believed that local comprehensive solid waste management plans should be encouraged and that landfilling, waste-to-energy, and recycling are important and essential components to such plans. Many people tend to say that one or the other is the answer to a community's solid waste disposal needs, but given our current solid waste disposal crisis, many cities must look to each component as part of the answer. On the other hand, every community is different and we believe that maximum flexibility should be left to local governments in determining how solid waste is to be managed locally.

This Committee has the opportunity to develop legislation for waste-to-energy facilities that will lend stability and clarity to a regulatory framework that is uncertain at best and confusing. EPA recently upgraded their definition of best available control technology (BACT) to include scrubbers and particulate control (baghouses or ESPs) and announced their intent to regulate under 111(b) and 111(d) of the Clean Air Act. EPA's action to upgrade BACT comes as no surprise to cities. As a matter of fact, many cities have made the decision to employ scrubbers and baghouses based on the desire to minimize pollutants. In this regard, the local politics of solid waste disposal naturally pushes local government to adopt the best pollution control equipment available.

Technically, we believe EPA does have the legislative authority to regulate waste-to-energy facilities, as its recent announcements indicate. However, if we can work with the Committee to develop more specific legislation that would provide local governments increased certainty in project development, cities will be able to proceed expeditously in meeting their urgent disposal needs. Such legislation would need to be very carefully considered and weighed in order to assure that we were absolutely certain of its impacts locally. Without such careful consideration, we may inadvertently tie the hands of local government in responding to local solid waste disposal crises.

Modern waste-to-energy systems are sophisticated facilities that require extensive technical planning and development before they are constructed. Often the development process will take five to seven years, followed by a two to three year construction and start-up period. I am afraid, Mr. Chairman, that many people unfamiliar with local solid waste management planning believe that local governments are willy-nilly rushing to the development of waste-to-energy facilities. Nothing could be further from the truth. As you are aware, the development process includes extensive requests for proposals outlining pollution control equipment, health risk assessments, environmental impact statements, a host of permits required to begin construction and operation and many other technical negotiations including performance guarantees. We believe local governments, on the whole, have been extremely responsible in ensuring that these facilities have been planned with state-of-the-art technology and pollution control equipment.

Furthermore, Mr. Chairman, careful analysis of data derived from studies conducted at several universities shows that combustion of municipal solid waste makes only a minor contribution to observed ambient levels of dioxins and furans in the United States. We now know that there are many other dioxin and furan emission sources which contribute more significantly to ambient environmental levels. (In fact, no observable, clinical human health effects have been casually linked to emissions of dioxins, furans, heavy metals or heavy metal compounds from waste-to-energy facilities.)

A recent study of sulfur dioxide emissions from various sources has shown that in sum, sulfur dioxide emissions from electrical generation, industrial fuel combustion and phosphate production can be as much as one thousand times as great as the amount of sulfur dioxide emitted from municipal combustion of solid waste. Another recent study has reported that the level of emissions of polycyclic organic compounds, many of them known carcinogens, from wood-burning stoves is ten thousand times greater than emissions from municipal waste combustors. Additional data shows that thousands of times more nitrogen oxides come from sources other than municipal combustors.

We believe that the evidence indicates that municipal waste combustion does not significantly contribute to ambient levels of SO2, NOX and hydrocarbons. We believe that if the EPA has or would develop some emissions source inventory data, it would similarly show that combustors are not comparatively significant emission sources of heavy metals, particulates, dioxins, or furans.

We are quick to point out, Mr. Chairman, that we cite these figures to lend perspective to your efforts and in no way want to imply that the controls developed to date are unnecessary. Cities have taken great pains to develop projects that where necessary represent best available control technology, and we have done so in the context of existing permitting requirements which are consistent with all federal, state and local laws.

Now, Mr. Chairman, let me address what we believe are some essential parameters or guidelines that would have to be followed in any proposed legislation on waste-to-energy facilities.

1) The retrofit of existing facilities should be considered on a site-by-site basis and under the authority of 111(d) of the existing Clean Air Act. The diversity of existing facilities is quite significant, ranging from those which have become operational in the last five - seven years using best available control technology (BACT) to older incinerators. We think the only approach to this diversity is to consider retrofits on a case-by-case basis as allowed for under 111(d).

2) EPA should establish definitions of BACT under authority of Section 111 of the Clean Air Act. Many of the technologies currently under consideration are, in our opinion, not commercially available, practical, or proven. For example,

selective catalytic and non-catalytic reduction techniques have not been extensively tested on municipal solid waste combustors. Wet flue gas denitrification and condensation scrubbers are not widely available and may not be economically practical. Furthermore, cities believe that an integrated solid waste management plan should include source separation, source reduction, recycling, incineration and landfilling . However source separation, source reduction, and recycling are programs and not in and of themselves pollution control technologies. They should not be addressed in legislation under the category of BACT.

3) Under a BACT regulatory framework, future upgrading of BACT must be prospective, applied to facilities in process of planning and development, unless, of course, a finding is made that determines an existing facility to pose significant harm to the environment or to public health. To require facilities over a 20 year period to face possible BACT upgrades every five years is unrealistic and a regulatory nightmare. In our opinion these facilities could not be financed in a regulatory environment that required major technical revisions every five years to a level of the greatest degree of emissions achievable. Traditionally, local

governments have financed solid waste facilities without direct federal assistance. Any regulatory framework developed for waste-to-energy should provide the certainty required to finance projects.

4) Use of the concept of a "level of the greatest degree of emissions achievable" for future revision of standards does not take into account regional differences and is not practical. Such a concept could cause local governments enormous expense for only marginal environmental gain. One state may choose to require extensive control for a compound to achieve marginal gain because such a gain could be important to the local environmental situation. But under a concept of "greatest degree of emissions achievable," every facility in the nation would have to comply eventually even if no significant improvement or effect on the environment would occur.

5) Monitoring requirements and procedures must be established by the Administrator based on proven monitoring technology and standard engineering surrogates: time, temperature and carbon monoxide. For example, it has been suggested that HCl be continually monitored, but to date no dependable, proven technology exists to do so. To impose such

a specific requirement by statute would straitjacket governments. The Administration must have flexibility not only to take advantage of technological advances but also to discard technologies that may ultimately fail. Also, it is impossible to monitor furnace temperature with a probe. The engineering practice is to calculate it.

6) Suggestions to legislate the exact frequency of testing must take into account the cost of such testing. For example, testing for dioxins and furans cost more than $100,000 per test. Although, testing should be performed as frequently as needed to protect the public health, the Administrator of EPA should be given the flexibility to develop a practical testing program.

7) Cities have no problem if Congress chooses to ban certain compounds or wastes from the waste stream; however, cities should not be mandated to perform source separation where there is no widespread experiences for doing so. If there are "bad actors" in the waste stream, Congress should mandate EPA to study what should be eliminated from the "stream of commerce" and take action accordingly.

The bottom line is local governments have to pick up the garbage as it comes to them, and deal with it through landfilling, incinerating, and recycling.

8) In no way should proposed legislation interfere with a local government's flexibility to site facilities.

9) Finally, Mr. Chairman, we believe that waste-to-energy facilities should not be subject to sanctions such as construction bans for non-attainment areas. It is sound public policy not to inhibit local governments from constructing solutions to their solid waste disposal crises based on difficulty in meeting other environmental goals.

Mr. Chairman, we look forward to working with you very closely on this issue of incredible importance to our nation's cities.

TESTIMONY OF ELLEN K. SILBERGELD, PH.D.

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BEFORE THE SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

COMMITTEE ON ENVIRONMENT AMD PUBLIC WORKS

U.S. SENATE

ON LEGISLATION

TO CONTROL EMISSIONS

OF CERTAIN AIR POLLUTANTS

AND TO REGULATE THE HANDLING OF ASH

FROM MUNICIPAL INCINERATORS

July 23, 1987

INTRODUCTION

On behalf of the Environmental Defense Fund, a national nonprofit environmental organization of 55,000 members working to reduce avoidable involuntary risks to human health and the environment, I am pleased to respond to your invitation to testify on the need to control air and ash emissions from municipal incinerators. This need has been recognized by many national authorities, including as of July 1, the Environmental Protection Agency which committed itself to the issuance of guidance for reducing air emissions from this class of sources. EPA's proposal still falls short of assuring safe operation of these facilities, and there is no guarantee that "guidance" will necessarily bring about the "immediate" implementation of effective control technologies. Nevertheless, it is noteworthy that there is little disagreement as to the importance of this issue or the need to introduce controls.

One of the factors that has encouraged the current and ongoing rush towards incineration by local waste management officials is the current permissive climate of regulatory neglect. Even with EPA's proposed guidance on controlling air emissions, this policy of deliberate ignorance continues with respect to controlling ash residues, which comprise the _major_ output of incineration.

Philip Abelson, the distinguished editor emeritus of _Science_, has best expressed the likely results of such continued neglect:

> "...The present usual alternative to landfill disposal is to incinerate the waste, thus reducing the volume by about 90 percent. If noncombustibles and moist garbage are separated first, temperatures in the furnace can be sufficiently high to destroy all organic matter. The heat produced can be used to generate electricity. However, critics have raised questions about burning unprocessed trash. When excessive moisture is present, temperatures in the furnace will be limited, and dioxins and other hazardous chemicals may be created. In Europe, incinerators are closely monitored to ensure complete combustion of organics, and scrubbers are employed to eliminate acid gases such as hydrogen chloride. In the United States, neither the federal government nor the states have established a full range of performance monitoring and standards. Incineration plants known to be functioning poorly have not been shut down....
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> ....
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> "With the imminent closing of landfills, many cities are building or planning to build incinerators. Before new air pollution problems are created, lessons should be learned from other developed countries that have in place standards, monitoring, and trained engineers to operate the plants." [Science, vol. 236, p. 1409, June 12, 1987.]

Incineration of municipal waste is increasingly selected as the option of choice in sanitary engineering. At present there are thousands of virtually uncontrolled combustion facilities around the country. Approximately 100 of the new generation of so-called resource recovery plants have been constructed by cities and small towns anxious to control the volume of our daily wastes. Hundreds more are being proposed.

The EPA states that there are 111 municipal solid waste incinerators in operation and estimates that at least 210 are planned or are under construction. For example, in the region that includes sourthern New York, Connecticut, Massachusetts and Rhode Island, 16 incinerators are now in operation and 30 are planned. In Florida, 6 are reported by the EPA to be in operation and 10 are either under construction or in planning. Minnesota has four in operation with two more being planned. Nine new facilities are either being planned or built in New Jersey.

This trend towards incineration results from many factors: past mismanagement of many land disposal sites, where comingling of municipal and hazardous wastes occurred; mistakes in location and management, which have resulted in groundwater contamination, as at Laurel Park, in Connecticut; a loss of capacity as available space is used up, as in Staten Island, N.Y.; and, not least, the present regulatory climate of benign neglect which favors operation of incinerators, as in EPA's decision not to challenge a recent bill passed in Oregon which flagrantly defies the results of scientific testing of ash. Yet, at the same time, regulatory black holes can also swallow up good technological choices. The absence of consistent signals from the EPA does more than any alleged outbreaks of the "not in my back yard" syndrome to block acceptance of incinerators.

Incineration is an ancient method of waste management. Open burning still continues for agricultural and land wastes in many localities. However, concerns over air quality -- aesthetic as well as health-based -- tended to discourage use of incineration in waste management until the 1970's. Modern incinerators, while considerably different in design and operation from these older units, are basically mass-burn chambers frequently coupled with water boilers to generate steam for heat or power generation. While these new designs can produce heat or electricity which has some value, these "resource recovery" features do not impact upon the actual or potential air emissions and related environmental problems of this technology.

This testimony will first set forth a set of proposals for a federal legislative approach to the safe regulation of incinerators and then will address three issues:

- health and environmental effects associated with increasing reliance upon incineration in the U.S.
- methods for controlling the impact of incineration, proposed in legislation, as compared to proposals from industry, EPA, the states, and experience in other countries
- integration of the technology-based standards proposed by legislation and by EPA with statutory goals for protecting human health

Before turning to these issues in detail, EDF wishes to state for the record that we are not categorically opposed to incineration as a potentially useful component in integrated waste management. We share with local sanitary control officials an appreciation of the imperative to deal with municipal waste. EDF also agrees with environmental scientists who have shown that past management practices of uncontrolled land disposal are unacceptable and, in certain instances, no longer practicable. EDF also supports those critiques, expressed most eloquently in a recent article by Dr. Barry Commoner in The New Yorker, suggesting that it will require fundamental changes in our patterns of production and consumption in order to effect the waste cycle in a rational and fully protective way.

Achieving a rational approach to waste management is beset by the very different time scales of these concerns. Waste managers are obligated to deal with trash every day, to ensure that it leaves our houses, streets, and offices and goes somewhere other than to a fleet of drifting barges which could grow to ring our shores with shame. Citizens are concerned that methods for waste management in the short term do not result in environmental and health impacts which outweigh the problems of old-style dumping. Planners and activists are working towards changing our disposable society to one which more responsibly internalizes its production/consumption patterns and recovers the resources which are too frequently used once and thrown away. We must all be vigilant that the solutions proposed do not institutionalize the mistakes of the past or fail to solve the problems of the present or prevent the improvements likely to come in the future. Within these constraints, EDF has been working for the past 3 years on several projects in the area of integrated waste management. Our work has been guided to provide real solutions to real problems of waste management; to analyze accurately the costs and benefits of various waste management options; and to ensure that waste management systems do not transfer pollution impacts from one medium to another.

For these reasons, EDF strongly supports legislation that would provide feasible constraints upon the operation of this one method of waste management, incineration. For reasons to be discussed below, EDF considers that the control of air emissions and the safe management of ash residues are critically linked. Only by dealing in concert with all media of incinerator pollution can the potential impacts of incineration be effectively controlled.

I. A Proposed Legislative Approach

EDF has worked closely with Representatives Florio and Waxman in the House to develop legislation that would establish a regulatory regime for ensuring the safe use of incineration. H.R. 2516, 2517 and 2787, introduced by Represenatative Florio, would go a long way to establishing such a regime. Throughout this testimony we will be referring to the language in these bills as a point of reference in our discussion of the ways to control the hazards of incineration. EDF strongly urges this Subcommittee to adopt H.R. 2516 and 2517 as the foundation on which to build its incinerator legislation and recommends the following basic provisions and requirements as essential to protecting human health and the environment:

1. Best available control technology for limiting the emissions of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, volatile organic compounds, lead, mercury, beryllium, hydrogen fluoride, hydrogen chloride, antimony, arsenic, barium, cadmium, chromium, cobalt, copper, nickel, selenium, zinc, polychorinated dibenzo-p-dioxins, polychlorinated dibenzofurans, and polynuclear aromatic hydrocarbons.

2. Definition of BACT to reflect greatest acheivable emissions limitations and to include requirement of maximum and/or complete combustion since certain listed toxins are products of incomplete combustion.

3. Health-based standard, based on physiological markers, to complement technology-based standard (as described in section V of this testimony).

4. Requirement, as part of permitting process, that proponents of incinerator undertake comprehensive waste management planning that relies on recycling, methods of solid waste reduction, waste separation and other techniques to minimize threats to health and the environment and maximize resource conservation. Many substances, including toxic metals, are uncombustible. Their presence in the incinerator waste stream prevents the complete combustion of other waste and transforms incinerators into virtual secondary smelters, increasing significantly the toxicity of their air-borne and ash emissions. Eliminating these substances from the waste stream in the first place is essential to controlling incinerator emissions.

5. Stringent emissions monitoring sufficiently comprehensive to account for heterogeneous and variable composition of waste stream.

6. Operator training and facility maintenance requirements.

7. Default provisions adequate to ensure effective emissions controls in absence of EPA action and implementation schedule and/or definitions of new

and existing facilities that will capture generation of facilities in the process of being built.

8. Direction to EPA to develop hazard-testing procedures for incinerator ash that

encompass all environmental pathways through which ash-borne toxins can be delivered into the environment -- e.g., through inhalation, incorporation into

the food chain or inclusion in surface water run-offs. The current test, the Extraction Procedure toxicity test, only accounts for groundwater leaching capacities of ash, but does not address these other pathways of exposure.

9. Required testing of fly ash, bottom ash and combined ash. Such testing, by demonstrating that combining fly and bottom ash greatly increases the toxicity of unmixed bottom ash, may persuade ash-generators to manage fly and bottom ash separately for cost-effectiveness reasons.

10. Optional ash-management regimes that would permit facilities either 1) to treat ash so that the treatment product passed the hazard-test or 2) to dispose of ash that flunked the hazard test in the same manner in which hazardous waste is disposed.

We intend, in the balance of our testimony, to develop the importance of this proposed legislative framework.

II. Health Impacts of Municipal Incinerator Air Emissions

Municipal solid waste incinerators (MSWI) are known to emit a range of substances with well-characterized impacts on human health and the environment. The output of incineration is not solely into the ambient air. Residuals exit incinerators into the environment by one of two major paths: either up the stack as discharges into air, or into the solid phase collection systems which collect particulates as ash at several points in the incinerator, depending upon design and type of pollution control equipment. The emissions from MSWI fall into four categories, and are produced in both gas and particulate phases:

- acid gases, including hydrogen chloride, hydrogen fluoride and oxides of sulfur and nitrogen

- uncombustible substances, such as metals

- incompletely combusted substances, including polycyclic aromatic hydrocarbons and volatile organics such as formaldehyde and benzene

- products of incomplete combustion, such as dibenzofurans and dibenzodioxins

These emissions are not surprising, given the heterogeneous mixture of material accepted by incinerators.

Given its strong commitment to halting the ravages of acid rain, this Subcommittee needs no information from me on the import of a new set of dispersed sources of acid deposition -- which is exactly what uncontrolled incinerators would prove to be. Measurements at incinerators around the world demonstrate that these facilities can emit significant amounts of sulfur dioxide, nitrogen oxide, and other acids. Ecological monitoring around the modern incinerator in Heimdal, Norway, found significant changes in the pH of rainwater associated with the operation of this facility, which has prompted the government to require addition of a wet scrubber to its pollution control system.

The uncombustible substances of greatest concern in emissions from MSWI are the toxic metals, among them lead, cadmium, arsenic, mercury, beryllium, selenium, and chromium. Because these are all elements, no incineration technology can destroy them or alter their toxic properties. Moreover, they are all metals with long pedigrees in toxicology and clinical medicine, as recognized in EPA criteria documents and scientific reviews (see Friberg et al. Handbook on the Toxicology of Metals, (1985) Elsevier). These metals are highly toxic, causing damage to the nervous system and other target organs.

Cadmium, beryllium, arsenic, and certain forms of chromium are carcinogenic; higher rates of certain cancers have been reported in lead-exposed workers. For many of these metals -- notably lead, cadmium, arsenic, and mercury -- emissions from combustion sources have been associated with significant outbreaks of human disease. Epidemic lead poisoning has been described near primary and secondary smelters which have emitted lead from stacks and fugitive sources (see, e.g., Landrigan, et al. N. Engl. J. Med. (1975) 296: 123). Significant impacts on reproductive function and cancer rates have been documented in populations exposed to cadmium, lead, and arsenic from smelters (see Nordstrom et al. Hereditas (1978) 88: 51). Mercury and chromium are particularly hazardous to organisms in the food chain and through them the health of human consumers has been damaged.

Among the incompletely combusted substances and products of incomplete combustion, major health concerns have concentrated on the complex organic molecules in the category of polycyclic aromatic or polynuclear aromatic hydrocarbons. Halogenated and nonhalogenated benzoic and phenolic derivatives have been measured in incinerator emissions; these are derived from the chemical reactions of fire with constituents within the waste stream fuel. Considerable attention has rightly been directed towards products of incomplete combustion, because among them are the highly toxic dioxins and dibenzofurans. These substances should raise a fundamental challenge to incineration as a means of waste handling because they represent an new impact of incineration which is derived from the technology itself, rather than from the combustion-related release of components already within waste.

The emissions generated by incineration of MSW may leave the facility up the stack, or they may be collected at various points within the incinerator/energy transfer phase/pollution control systems. These two processes are intrinsically linked, as discussed below.

It may be argued that for the most part the toxic constituents of incinerator emissions are derived from waste; hence exerting controls over them as MSWI emissions fails to provide similar constraints upon their release from other methods of waste management, i.e., landfills. For instance, the metals in MSWI emissions are not the product of incineration but rather represent the amount of such elements already present in waste. Why is it appropriate to call for special controls upon MSWI? To answer this question, it is necessary to appreciate what the processing technology of incineration does to the metals in waste. In consumer products, most metals are bound within various matrices -- within polymers of certain plastics, which use lead, zinc, tin, and cadmium as catalysts; or in magazines and papers where lead- and cadmium-based pigments have been used. Arsenic is a molecular constituent of gallium arsenide LEDs in consumer electronics, such as watches and toys; mercury is present in low grade pulp paper or in batteries. In these product matrices, the bioavailability of metals is generally very low and the release rates of these metals from uncombusted waste into the environment is slow, although not insignificant.

Burning metal-containing trash is essentially a process of smelting, which releases the uncombustible metals from their combustible surroundings, and reduces the size of the final residue matrix very greatly. Also, the metals are displaced to the outside of the resulting ash particle. Metals on such small particles are readily leachable, as results around the country demonstrate (see EDF testimony on "The Environmental Hazards of Ash from Incineration of Municipal Solid Waste", before the Subcommittee on Transportation, Tourism and Hazardous Materials of the House Committee on

Energy and Commerce, March 19, 1987, attached). Moreover, small particles like fly ash can be directly inhaled, ingested and otherwise absorbed by humans who come into contact with them in air or in the environment after deposition.

In some cases, the metals are even driven into the gas phase by the temperatures in modern incinerators. According to research at the Norwegian Technological University SINTEF institute, as much as 91% of total mercury, 28% of total cadmium, and 12% of total lead are found in stack gas emissions after particulate control.

What is the overall burden of these emissions from incinerators? Measurements done by the Ministry of Environment in England report that incineration yields on average 43 mg lead and 1.9 mg cadmium per kg of trash. Concentrations in U.S. waste appear to be almost 20 times higher. Thus, for a 1000 ton/day facility, as proposed in many U.S. cities, this would amount to approximately 39 to 800 kg of lead per day released from waste into the environment. Already, as EDF has estimated, currently operating U.S. resource recovery incinerators (approximately 60) are loading the environment with twice as much lead per year as is emitted by all the leaded gasoline used in 1986. The effect of incineration to concentrate the lead in waste can be seen by results which indicate that ash contains between 0.5 and 4% lead by weight, as compared to the original concentration of lead in unburnt trash of 0.000043 percent; the concentration factor is as much as 10,000-fold. Emissions of other pollutants have also been estimated, in terms of rates: tetrachlorodibenzodioxins, for instance, have been measured in the range of

30-60 ppb in the ash which leaves the incinerator stack (Dr. R. Hartung, personal communication).

Remarkably little toxicity testing has been done of emissions from incinerators. A study from the Swiss Federal Institute of Technology in 1986 reported that rats fed material collected from the flue gas chimney (post pollution control) expressed signs of lead and cadmium poisoning, as well as substantial increases in blood lead and cadmium levels (Suter-Hoffman and Schlatter (1986) paper presented at Dioxin '86 Symposium; attached). At high exposures, effects typical of dioxin intoxication (increased liver weights and thymic atrophy) were observed; the authors concluded that "heavy metals are mainly responsible for the toxic effects of particulate emissions from municipal incinerators".

Clearly, MSWI can be a major source of highly toxic air pollutants. Their placement, near areas of major population density, increases the likelihood that their emissions will significantly affect human health. Of critical importance, these impacts will not be abated by focusing, as EPA has done, only upon the stack as the point of control.

III. Approaches to the Integrated Control of MSWI

The toxic impacts of MSWI derive from release of materials in waste as well as the generation of products of complete and incomplete combustion. These toxins appear in both gas and particulate phase emissions, and in outputs which go up the stack or come out at the bottom of the incinerator.

Only by understanding these fundamental characteristics of these emissions, appropriately defined, can we propose rational and comprehensive plans for their management.

Efficient control of the toxic emissions from incineration involves three stages of action, as outlined in legislation and noted by Abelson, as quoted earlier:

- modification of products and consumption patterns
- selection of components of waste for incineration
- appropriate controls on the handling of residues from all points of generation and collection

Legislative language requiring analysis of comprehensive solid waste management plans which include source reduction, recycling, and other cost effective measures is necessary to ensure that methods of reducing risks are incorporated into the process of permitting incineration facilities. Focusing the level of control only at the endpoint dooms us to the least cost effective solutions.

A. Modification of products and consumption patterns

It is at the level of product formulation and consumer behavior that the greatest efficiencies in ensuring safe management of wastes can be achieved.

This philosophy has been incorporated into our national policy on hazardous waste, but has yet to find a place in solid waste management. Meaningful recycling and source reduction programs as part of the process of product use and disposal, can modify waste before it reaches the incinerator. EDF's analysis of the waste management options before New York City (To Burn or Not to Burn) found that substantial reductions in the volume of waste can be fairly easily achieved by relatively nonintrusive modifications in disposal practices. Recycling of paper, aluminum cans, batteries, and bottles greatly reduces the sheer volume of waste, while increasing the combustibility of the remaining waste stream. Others, notably the Institute for Local Self-Reliance and INFORM, have drawn upon empirical experience around the world to develop realistic and innovative plans which incorporate substantial recycling and source reduction. Clearly, there is great environmental and economic justification for improving our utilization of these techniques in waste management.

Moreover, from the perspectives of concerns over toxic emissions, these strategies can have significant impact upon the potential quantity and nature of incinerator emissions. First, by reducing the volume of wastes to be burned, the mass of toxic emissions can be reduced. Second, certain components of waste contain a large fraction of some of the substances of concern, such as the metals. Targetted recycling, directed at removing these wastes from the disposal path, can reduce specific emissions. For instance, programs to recycle batteries and newspaper would probably reduce the overall output of lead, mercury, and cadmium from incinerators. Third, recycling bottles, cans, and other noncombustible items from waste will improve the efficiency of combustion for the remaining waste stream. This will reduce the proportion of incompletely combusted organics and potentially the rate of generation of dioxins and dibenzofurans.

In addition, there are other interventions in our production/consumption patterns which can significantly reduce the endstage impacts of toxic emissions from waste disposal methodologies. Consideration of the feasibility of reducing our use of toxic metals, such as lead, cadmium, arsenic, and mercury, at the production stage should be a high priority activity by EPA under the authority of the Toxic Substances Control Act. TSCA directs the EPA to consider impacts of disposal in its assessment of new and existing chemicals. We have urged EPA to make integrated use of TSCA authority to supplement the goals of RCRA by preventing hazardous waste problems at the outset. To date, this approach has found little active support at the Agency. Some examples from our own national experience and actions in other countries should encourage us to examine this option vigorously. Replacement of lead- and cadmium-based pigments in printing inks is feasible; we have removed lead from paint successfully, since 1973, under the Lead-Based Paint Poisoning Prevention Act. In Norway, according to SINTEF, an examination of metal sources in consumer products was undertaken before the go-ahead was given to incineration in waste management; as a result, uses of chromium, lead, and cadmium were significantly reduced at the level of production.

B. Selection of wastes for incineration

Another level of efficient intervention prior to the generation of a difficult emissions problem is at the input hopper to the incinerator. Although incinerators are touted as "mass burn" units capable of accepting anything anyone wishes to dispose of, this is clearly an inappropriate use of incineration. First, incinerators cannot burn everything; many things are poorly combustible or simply noncombustible. Second, it is this decision to burn everything which results in many of the problems of toxic emissions. Selection of components for management by other technologies would improve the efficiency of incineration and reduce certain emissions and operating problems. This selection may be done by the consumer, as in Japan and Scandinavia, or at the facility, as in Germany. Under either approach, it makes good engineering and environmental sense not to burn everything. Materials which carry an inordinate share of the eventual toxic loading should be prevented from being incinerated. Metal-bearing items, including batteries, waste oil, paints, color-printed material, and consumer electronics should be kept from the incinerator feed.

C. Emissions control and monitoring

Even with appropriate action at the preventive level, either under TSCA or as part of source separation strategies, incinerators will continue to be sources of pollutants which will require control at the stack and other output points. Even in the absence of identifiable toxic constituents such as metals, incineration generates particulates, acid gases, and polycyclic aromatic hydrocarbons. The types of technologies proposed in legislation such as H.R. 2516 and in the EPA guidance represent good engineering practice for the control of emissions from many combustion sources; they do not single out incinerators. Thus, even if effective controls are imposed at the levels advocated above and included in legislation such as H.R. 2516, before incineration occurs, it is still essential that best available pollution control technology be mandated. The controls outlined in H.R. 2516 are designed to accomplish these goals insofar as they are directed towards potential releases up the stack. Technology to deal with nitrogen oxide emissions is necessary under conditions of operation which optimize the destruction of dioxins and furans.

Pollution control must be coupled with monitoring of stack emissions. There are several reasons for this. First, municipal solid waste is by its nature heterogeneous; thus, it is not possible to predict accurately the performance of such technological controls as temperature/gas composition on the actual output of toxic emissions. Attempts to correlate the generation of dioxins and dibenzofurans, for instance, with temperature and CO/O_2 have not been notably useful, particularly in terms of guiding proper performance in order to reliably prevent such emissions. Second, setting technology or emissions standards in the absence of monitoring requirements gives no incentive for compliance and no source of information to guide our further evaluation of this technology. The industry to date has been remarkably unwilling to submit to any suggestion that it should stand by its glowing risk assessments. EDF found, acting as a consultant to the city of San Marcos, CA, that the vendor of a proposed facility was not willing to commit to meeting the emissions limits which were claimed in its own risk assessment proferred to the city council. It is easy to proclaim that emissions of dioxin from the proposed Brooklyn Navy Yard incinerators, for instance, will result in risks so infinitesimal that the entire population of New York City would have to be exposed in order to note one additional case of cancer; it is a different matter to allow real data on dioxin emissions to be collected and used as a reality check upon such claims.

In order to be linked to the evaluation of the performance of mandated control technology and to acheive accurate assessments of impacts of emissions, monitoring of MSWI must take place at all critical points of generation and release of pollutants as well as in the environment most likely to be impacted by uncontrolled or residual emissions. EDF supports strict monitoring requirements and would oppose any relaxation of frequency upon prior demonstration of compliance. The inherent variability of MSW requires more frequent monitoring over the lifetime of operations. EDF has proposed, in a petition to the New York state Department of Environmental Conservation, a schedule of monitoring which incorporates a tiered approach from continuous to intermittent to periodic monitoring whereby results from each tier may obligate more comprehensive monitoring methods.

The language of legislation such as H.R. 2516 accurately describes the purposes of monitoring to take place "at the point at which such emissions are emitted into the ambient air and at such other points as the Administrator deems necessary to protect human health and the environment.[emphasis added]." As discussed below, to accomplish these purposes, monitoring must go considerably beyond current practices of stack testing and ambient air sampling, and cover other points of release from incinerators and receptors in the environment.

IV. Management of incinerator emissions -- stack and ash controls

In its consideration of the potential impacts of MSWI, Congress has approached the problem from the perspectives of existing legislation, through the Clean Air Act and the Resource Conservation and Recovery Act. This separated approach, which fits within existing legislative and regulatory structures, requires extreme care to avoid severing the critical linkage between stack emissions and ash residues. EDF could not support enactment of legislation that only addressed air emissions from incineators without also regulating the treatment and disposal of ash, and EDF does not support EPA's approach to provide guidance for controlling MSWI air emissions alone, in the absence of controls on ash. It would be unthinkable to allow incinerators to reduce their air pollution controls as a means of reducing the hazards of ash. But too often there is a failure to realize that improving the quality of air emissions alone results unavoidably in increased amounts and toxicity of collected particulate, usually known as fly ash. The two outputs are inextricably linked, and the hazards of incineration arise from both the stack and the ash residues. Currently, material collected by air emissions control technology is usually combined with other solid residues from the incinerator and codisposed without testing or controls. Preventing emissions of toxic substances through controls over air emissions without providing for oversight over ash disposal is merely transferring the risks from one point of release to another, with no effect on overall risk reduction. In fact, the hazards of toxins when concentrated in ash may exceed those of the same toxins dispersed into air, in terms of dose-rate and efficiency of multimedia transfer.

This linkage is particularly critical because the effect of EPA's guidance and any legislation to require the installation of increased controls on stack emissions -- scrubbers and fabric filters -- will be to greatly increase the hazards of ash. Studies by the Canadian Government National Incinerator Testing and Evaluation Program (NITEP) have demonstrated that ash enriched with the fractions trapped by fabric filters and scrubbers is much more enriched in metals than the ash trapped by electrostatic precitipators alone. Improving the quality of air emissions at the expense of ash is only delaying the day of reckoning, when those toxins taken out of the flue gas eventually find their way unchecked into the environment.

EDF thus supports the language of H.R. 2517 which links proposals to amend RCRA to provide for testing and appropriate management of ash residues from incinerators. This establishes a reasonable, risk-based and exposure-based program of ash testing and a set of predisposal treatment and disposal regulations designed to deal with those hazards which are detected in ash. EPA has continued to endorse the interpretation that if ash fails leaching tests, then it must be managed as a Subtitle C (hazardous) waste [conversation with Dr. J. Winston Porter, 6/29/87.]. EDF does not consider this response to reflect necessarily the highest wisdom, for two reasons: first, the hazards of ash transcend its potential to transfer toxics from the solid to liquid phase, which is what is measured in leaching tests; and second, it is more reasonable to encourage treatment and even pretreatment options (including source separation and recycling) as a means of reducing the risks of ash, rather than consigning this waste to the nation's limited resource of fully permitted hazardous waste land disposal facilities. Unfortunately, although EPA pays lip service to the requirements of RCRA on the definition of hazardous waste through the leaching test, in practice EPA has yet to require testing of MSWI ash or appropriate action at facilities such as Westchester New York where test results indicate that ash repeatedly fails leaching tests for lead and cadmium. EPA is reportedly going to encourage by tacit assent the decision of the Oregon legislature to override results of ash testing, to declare ash by definition to be nonhazardous regardless of scientific data to the contrary. Congress should not be lulled into relying upon current Agency guidance to comprehensively control MSWI, when EPA is only encouraging the shift of toxics loading from air to ash. Congress should not side with this erroneous policy. Only by ensuring joint passage of legislation covering air emissions and ash management will this be accomplished.

V. Providing A Basis For Health Protection From Emissions From MSWI

The proposed legislation to control air emissions from MSWI is at present technology-based. Though EDF generally supports this legislation, EDF recognizes that it lacks a specific health-based component with which to evaluate technological solutions and the performance of control technology on specific facilities. Within the provisions for appropriate monitoring, EDF proposes that H.R. 2787 be amended to provide that the controls on such facilities be designed and operated to prevent levels of lead in blood of the impacted population from exceeding 10 ug (micrograms) per deciliter whole blood, and levels of 2,3,7,8-tetrachlorodibenzo-p-dioxin from exceeding 10 ppt in circulating blood lipids, breastmilk fat, or adipose tissue. The rationale for this new approach is summarized below.

EDF's proposal makes use of new, but validated, methods of biological markers. Biological markers are indicators measured in populations or biological systems or within physiological compartments in individuals. Recent advances in chemical analysis, molecular biology, immunology, and other fields have provided a range of these indicators which are being investigated as signals of exposure, biological effect or response, and even susceptibility (see, generally, National Academy of Sciences, Report of the Committee on Biological Markers, 1987).

By using biological markers as proposed, the emissions control technology requirements of H.R. 2787 can be expressly linked with the goals of protecting health which the Clean Air Act is designed to achieve. While this proposal is made in the context of proposed legislation to regulate air emissions from MSWI, it has more general applicability to many, though not all, hazardous or toxic air pollutants (in Section 111 and 112). In the case of MSWI, biological markers are proposed to replace the current methodology of ambient air monitoring, while it continues to rely on modelling the environmental pathway from the source to the area of maximum impact. The proposal improves upon ambient air monitoring in several respects:

- *biological monitoring is methodologically more straightforward than sampling ambient air* (*e.g.*, it avoids problems in selecting high- or low-volume sampling for ambient pollutants or in determining particulate size)

- *biological monitoring provides an integrating measure of total exposure* (this is more relevant to the health risk of those pollutants of major concern from MSWI; it also avoids the problems of determining appropriate averaging times which arise in programs of ambient air monitoring)

- *biological monitoring unequivocably demonstrates exposure* (thus the issue of estimating rates of direct and indirect transfer from ambient air is avoided)

- *biological monitoring provides a comprehensive indicator of all environmental pathways and routes of exposure* (for air pollutants, this means that exposures via inhalation, ingestion and dermal absorption are covered, and that exposures to pollutants after deposition will also be detected)

- *biological monitoring provides information on incremental exposures related to specific sources* (because of its greater precision and specificity, biological monitoring can provide a better basis for evaluating the marginal contribution of a single new source to overall human exposure)

- *biological monitoring can be directed towards selected high risk populations* (by choosing the subjects of study, such as children, information directly relevant to protecting the health of susceptible groups can be selectively monitored rather than estimated or projected)

- *biological monitoring can be used to guide site selection and to signal the occurrence of significant exposures other than the source under scrutiny* (more precisely than the designation of non-attainment, it can reveal the presence of sources of exposure other than the MSWI which indicate that the population is already at risk, or that another, unidentified source of exposure needs control for purpose of protecting health)

The biological markers defining the health-based standards applicable to MSWI are levels of lead in whole blood and levels of 2,3,7,8-tetrachlorodibenzodioxin in blood lipids, breastmilk fat or adipose tissue (which are comparable compartments). These are markers of exposure, that is, measurements of pollutants inside the body. Lead and dioxin are pollutants of concern. As noted by EPA, they have been measured in the emissions from MSWI at levels sufficient to indicate substantial risk (although EPA persists in quantifying only the risks of cancer from these exposures). Lead and dioxins are measurable in blood and have the characteristics listed above as advantages of biological monitoring. They are both stable, that is, they are persistent and have long half-lives in the body, so that their measurement in blood provides information on both short- and long-term exposure. Exposure to both pollutants from MSWI involves multiple routes of absorption and multimedia/crossmedia movement. For both lead and dioxin, the uptake coefficients (i.e. the rate of transfer from external dose to internal levels) are relatively well understood.

Lead and dioxin have other advantages as biological markers in the context of MSWI, as discussed below.

A. Guidance for comprehensive municipal waste management strategies.

Since lead, for example, can be associated with the presence of lead-bearing materials in waste, such as batteries, paint and waste oil, its presence in the affected population's blood at elevated levels can indicate the need for increasing the efficacy of programs to recycle or reclaim these lead-bearing materials.

B. Feasibility of source pinpointing

Because of the chemical nature of lead and dioxin, it is possible to identify with some specificity the source(s) of lead and dioxin measured in blood. Atomically, lead exists on earth as several stable isotopes, nonradioactive species of lead which differ by the weight of the nucleus. These isotopes can be distinguished by stable ion monitoring. Sources of lead differ in the relative proportion of these isotopes. Differences in isotopic distribution have been used to identify exposures to lead paint dust and tetraethyllead from gasoline (see EPA: Ambient Air Quality Criteria Document for Lead (1986)). In the case of dioxin, different sources contain or release different mixtures of dioxin and furan isomers. For instance, the mixture of dioxins in persons exposed occupationally to 2,4,5-T manufacturing processes is relatively enriched in 2,3,7,8-TCDD. Persons exposed to incineration sources have relatively higher amounts of heptachlorodibenzodioxins and higher levels of dibenzofurnas as compared to dioxins. Thus, for both lead and dioxin, stack monitoring an isotopic or isomeric fingerprint to which samples from humans could be matched to determine the relative contribution of the MSWI to body burdens in the exposed population.

Thus, for both lead and dioxin, stack monitoring at the MSWI could provide an isotopic or isometric fingerprint to which samples from humans could be matched to determine the relative contribution of the MSWI to body burdens in the exposed population.

This process would probably be most useful if it were permitted to be invoked by a putative MSWI source seeking to challenge or appeal a regulatory determination, particularly in cases when another equally plausible source of exposure is identifiable for the persons sampled. Beyond this, however, this technique cannot distinguish among similar sources, such as several combustion processes. It is likely that emissions from MSWI will be more variable than those from other sources (such as lead paint or Agent Orange), so that identification by this process will never be perfectly selective. Also, it is expensive to analyze the range of lead isotopes or to measure all dioxin/furan isomers.

C. Coverage of all biological and pathological effects of importance

Lead and dioxin have properties as carcinogens, neurotoxins, teratogens, hepatoxins, immunotoxins, and reproductive/developmental toxins (*see, generally,* EPA: *Ambient Air Quality Criteria Document for Lead*; *Health Assessment Document for Polyhalogenated Dibenzo-p-dioxins*.) Rather than using a limited cancer risk assessment approach, as EPA proposes, the most health protective way to capture the comprehensive risk of exposure to these two toxic emissions is to define the standard directly in physiologic terms.

D. Regulatory reliability and flexibility

Since measurement of these biological markers can be done to determine levels of lead and dioxin at several time points, the approach can be applied both to resolve whether a permit for a proposed incinerator should be issued, and to monitor compliance with, and efficacy of, the proposed technological standards. Ideally, health-based standards should back up the proposed technology standards in regulating air pollutants. For MSWI, the technology to be applied generally relates to controlling particulate and gas phase emissions and to preventing the generation of dioxins/furans during MSW combustion. Technology available includes an appropriate combination of the following options, as indicated in proposed legislation: reducing metals by selecting material to be incinerated; reduction of organic pollutants through good engineering principles in the design and operation of the incinerator; particulate trapping with electrostatic precipitators and fabric filters as required; control of acid gases and metal vapors with wet or dry scrubbers. Other technologies may also be proposed as BACT for MSWI.

The selection of lead and dioxin provides health-based criteria which more or less ensure that all these technology options have been appropriately selected and are being properly operated. Lead represents the category of noncombustible inorganic pollutants derived from MSW, which are emitted largely in the particulate phase. Lead also indicates the presence of materials such as batteries, paint, and waste oil which should be removed from trash before incineration. Thus, increases in the biological marker of blood lead signal failure of particulate control systems or changes in waste composition.

Dioxin represents the category of persistent complex organic products of incomplete combustion, which are formed through incineration from precursors in waste and are emitted in both the gas and particulate phases. Thus increases in the biological marker of lipid dioxin signal failures in combustion performance, as well as problems with both particulate and gas-phase emissions control. Changes in dioxin levels may indicate changes in the composition of the waste stream, but this is less certain.

E. Biological monitoring and risk

Although this proposal is not based upon an explicit and hence controversial stipulation of "risk", it is obvious that levels of lead and dioxin in blood and lipids stand for indicators of risk, as well as of exposure. It may be argued that any measurable amount of lead or dioxin in persons denotes some risk of adverse health effects. Further, therefore, setting these levels for regulation at any value greater than zero is an implicit assumption that some level of some risk is acceptable.

While these arguments may be theoretically compelling, from a practical or empirical standpoint, this does not imply that these levels of exposure are associated with a level of risk which is "acceptable." This is because all humans currently carry measurable levels of both lead and dioxin in their blood and lipids. Thus zero exposure (and zero risk) is not possible to achieve, even by banning all present sources of lead and dioxin emissions from existing and new MSWI. This is of course one of the most compelling rationales for reducing all avoidable inputs of pollutants like lead and dioxin, at the level of production, processing, and waste management.

In addition, use of these biological markers solves the problem of incompleteness which is involved in EPA's more traditional risk assessment approach. The health effects, or risks, of lead and dioxin involve a range of biological events, in addition to carcinogenesis. Quantitative risk assessment methods do not exist for all these endpoints, which for both lead and dioxin include neurotoxicity, teratogenicity, hepatoxicity, developmental toxicity, reproductive toxicity, and immunotoxicity. Thus the selection of a specific level or target for these biological markers is not a simple surrogate for a level of cancer risk. Rather, the levels proposed are intended to protect human health.

F. EDF's proposed levels and methods for application

The basis for the levels in EDF's proposal involve several considerations: feasibility, measurability, medical consensus, and current US population levels. EDF proposes that technology based controls on MSWI emissions must prevent blood lead levels from exceeding a level of 10 ug/dl whole blood and/or dioxin levels in blood or other lipids from exceeding 10 ppt. These criteria must be attained within statistical reliability (p less than 0.025) for at least 95% of the impacted population (see, Ambient Air Quality Criteria Document for Lead, supra).

These levels are feasible to measure in human blood samples using relatively widely available and validated assay methods (see, Preventing Childhood Lead Poisoning, CDC (1983), and Needham et al. (1986) JAMA). These levels are not such that any incremental exposure is necessarily prohibited.

They are protective of human health, specifically of susceptible populations. For lead, there is a large literature on health effects associated with environmental exposures, including air pollution. Correlations have been established between external exposure and blood lead levels, and between blood lead and health effects. A level of 10 ug/dl protects against 3 major well-described health effects of lead: developmental damage to the fetus; neurobehavioral deficits in the young child; and increase in blood pressure in adults. Current estimates indicate that a level of 10 ug/dl is attainable, in the absence of other sources of lead, when ambient air levels of lead are below the proposed criterion of 0.5 mg/m^3 (R. Elias, personal communication and ms. in press).

The dioxin level of 10 ppt in lipid has less support or available data and thus represents a good deal of uncertainty, as compared to the case with lead. However, research by several authorities - government, academic and industry scientists - indicates that this level represents an upper bound on average body burdens found in the U.S. population nonoccupationally exposed to dioxin. According to the CDC risk assessment (Kimbrough et al (1984), J. Toxicol. Environ. Health 14: 47-93), this level represents the long term consequences of an external dose below 1 pg/kg/da, a dose which is associated with an incremental lifetime cancer risk of less than 1×10^{-6}, and a margin of safety for teratogenicity of greater than 1,000. Data available from population surveys by the Center for Disease Control, Schechter, and others also indicate that this level is feasible, that is, it does not totally prohibit MSWI. The level adequately protects against the best-demonstrated effects of dioxin: enzyme induction; birth defects; and cancer. The dose:response for the immunotoxic effects of TCDD is not known, but since these are thought to involve genomic level actions at the AHH locus, it is reasonable (at least on present knowledge) to extrapolate from the dose:response for increased transcription of DNA at this locus.

Implementation of EDF's Biological Monitoring Proposal

1. Measurement methods - the laboratory methods, blood collection and sampling procedures as published by CDC are to be used.

2. Selection of population to be sampled - the population will be identified in two ways:
   a. by modelling the area of greatest impact, and
   b. by selecting the subgroup at greatest potential risk (*e.g.*, children for lead).

Sampling will be done in 2 phases: before a permit is issued to a proposed MSWI and after start-up, at quarterly or semiannual intervals to determine compliance with these regulations.

A statistically representative sample of the identified population will be contacted and asked to participate in the biological monitoring program. (It has been EDF's experience that most Americans are interested in knowing their exposures to lead and dioxin. In addition, the participants have the benefits of learning about other potential sources of exposure, preceeding the MSWI, and hence of taking steps to reduce these exposures in order to reduce avoidable risks.) All sampling will be done with approved protocols for human research, including informed consent, confidentiality and reporting of results back to each participant.

The results of first phase testing may reveal any of the following: more than 95% of the population to be impacted are below the criteria levels; more than 5% are above the levels; or some persons have levels indicating that significant sources of exposure already exist in their environment. In the first case, the MSWI facility can be sited and permitted, in accord with regulation. In the second case, the facility should not be sited unless the source of exposure is identified and controlled (i.e., a kind of "attainment" or "offset" is reached on the basis of biological monitoring). In the third case, permitting of the MSWI may proceed, but public health officials should be notified that some persons are at risk and the source(s) of their exposure should be identified and controlled.

After operation of the MSWI begins, the second phase of intermittent monitoring takes over. If at any time, analysis of blood from a statistically representative sample of the identified population provides evidence that more than 5% exceed either criteria, the facility is held not in compliance. Investigation of the operation of BACT must be undertaken and any problems corrected. Alternatively, the facility must reduce operations to reduce emissions, or change operations (*e.g.*, remove lead-containing wastes, or increase post-economizer temperatures). After a detected exceedance, monitoring will take place more frequently. Persistent exceedance will be grounds for shutdown or for permanent reductions in operations as well as reductions in emissions sufficient to compensate for the extent and duration of the exceedance.

G. Limitations on the Approach

EDF's proposal has limitations and drawbacks, which need to be discussed. Methodologically it is limited to those pollutants for which there are good biological markers. These are either persistent substances which turn over slowly in biological compartments (like lead and dioxin) or substances which produce some type of fixed change in a biological system which can be related to exposure (such as a DNA or hemoglobin adduct, or an antibody) Short lived pollutants, like ozone and SO_2, or those which are not known to cause readily detectable biological changes at low dose, like mercury and cadmium, cannot be easily handled by this proposal. Also, markers for ubiquitous pollutants with multiple sources, such as benzo(a)pyrene while measurable (as B(a)P adducts to hemoglobin or lymphocyte DNA) do not provide useful information related to specific sources. As a result, many sources may not be covered by this approach, at least at present. But the field of biological markers is rapidly developing, and new instrumentation such as XAFS and MRI may add to the number of substances for which exposures can be monitored. The field of immunology is likely to develop a range of markers of early response to exposure as well as application of specific techniques (ELISA, MaB) for measuring low level signals.

Second, EDF's proposal requires sampling of people rather than the environment. Of course, many of the biological markers are measurable in other organisms, including plants, but then the approach does not completely solve the longstanding problems of extrapolating from environmental monitoring to human exposure and risk. Ecological monitoring may be useful to protect environmental targets, and also in situations where there are too few people for a reliable sampling design restricted to humans). Human sampling means dealing with the sociological and ethical issues of medical surveillance. It requires an agreement to participate by an appropriate set of subjects and a commitment to responsibility by the analysts.

Third, EDF's proposal accepts some level of exposure. This may cause concerns to those who reject notions of "acceptable risk" especially in the context of the Clean Air Act requirement for "an ample margin of safety". This contradiction is chiefly theoretical. For most pollutants of concern, perhaps regrettably, all persons have already been exposed. Consequently, all biological monitoring will give positive results, that is, levels greater than zero. Whether this means that all persons are hence at increased risk, as Patterson has shown for lead (National Academy of Sciences (1980) Lead in the Human Environment), may be debated. It cannot be changed. Thus the EDF approach deals only with detection of incremental exposure (and risk), not with absolute prevention of exposure (and risk).

EDF's proposals do not sound the death knell for incineration, certain industry spokespersons have alleged. EDF has never condemned incineration in general, but considers this technology to be a resource with potential value in integrated waste management. EDF has worked, and will continue to work, with EPA, Congress, local government, and citizen groups to develop sound control strategies for incineration which are technically feasible and protective of health. We cannot accept solutions for the trash crisis which transfer or slightly delay the impacts inherent in the way we demand, use, and dispose of the products of our fortunate society.

VI. Exemption of Incinerators from Air Quality Attainment Mandates

As the EPA figures cited above suggest, municipal solid waste incinerators may be the fastest growing new category of air pollution sources, and the quantities of pollutants they emit are substantial. For example, the environmental impact statement filed for the facility planned for the Brooklyn Navy Yard in New York City indicates that the facility is expected to burn 3000 tons of waste each day and will emit on a yearly basis: 1) 1915 tons of nitrogen oxide, 2) 1368 tons of sulfur dioxide, 3) 366 tons of carbon monoxide per year, 4) 276 tons of particulate matter, 5) 66 tons of hydrocarbons and 6) 25 tons of lead.

In view of this, provisions in the Subcommittee's Working Paper which exempt new incinerators in non-attainment areas from some of the mandates otherwise imposed on non-attainment areas and sources therein are simply irrational. To create a loophole for such a major category of new sources would seriously undermine the air quality attainment goals of the Subcommittee's legislation. First, localities that will have to cope with the need both to attain air quality standards and to absorb new sources of emissions from incinerators could easily be defeated in their attainment goals if they do not have federally legislated mandates bolstering their efforts to control, and create offsets for, incinerator emissions. The Subcommittee's deliberations earlier this month suggested that some Members expect their locales currently in non-attainment to be able to attain the required standards in a relatively short period of time. In fact, the incinerator loophole could well frustrate those expectations.

Second, because incinerators are playing an increasing role in many communities' waste management plans, communities' desire to build incinerators can create particularly effective incentives for compelling authorities to take the other steps needed -- e.g., assuring the two-for-one new source offsets required in the legislation -- in order to avoid the sanctions provided in the bill. Obviously, these incentives exist only to the extent that the applicable sanctions apply to incinerators just as they would to other sources.

Finally, uniform treatment of new sources is vital to ensuring balanced planning by the authorities responsible for the attainment of air quality standards. Imposing the offset requirements called for in the bill on incinerators as on all sources would not create a prohibitive burden on local authorities. In New York City, for example, where the Brooklyn Navy Yard incinerator is expected to emit just under 2000 tons of nitrogen oxide per year, total yearly emissions are 191,205 tons, of which a portion are emitted by utilities, which have no controls for nitrogen oxide. See, Environmental Impact Statement, Brooklyn Navy Yard Incineration Facility, Table D - 4.1. Since the City can find offsets from all sources, not just City-owned sources (as some have erroneously argued), the offset margin appears to be ample.

In contrast, if incinerators were allowed to add pollutants to the air in non-attainment areas without a federal prescription for offsetting for such additional emissions, the authorities operating the incinerators would have virtually no incentive for minimizing the emissions of criteria pollutants such as nitrogen oxide. In such a regime, the uncontrolled additional emissions would create that much more pressure for all other sources, new and existing, as targets for the emissions reductions needed to attain the mandated air quality standards. Even if controls were required, it would still be essential to mandate offsets for pollutants that were emitted so that communities' commitment to incineration would continue to operate as an incentive for reducing emissions from other sources.

ATCA

ALLIANCE OF TEXTILE CARE ASSOCIATIONS
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August 31, 1987

Ms. Kate Kimball
Staff Director
Senate Environment and Public Works
Subcommittee on Environmental Protection
408 Senate Hart Building
Washington, DC 20510

Dear Ms. Kimball:

Enclosed are five copies of the Alliance of Textile Care Associations' statement for the July 23, 1987 subcommittee hearing on air toxics control legislation.

We appreciate Senator Mitchell affording us the additional time to submit our comments.

Sincerely,

Bernard J. Stoll
Administrator

Enclosure

TESTIMONY

CAA Amendments Title V

Mr. Chairman, we appreciate the opportunity to submit written comments for the record of the Senate Subcommittee on Environmental Protection in connection with its hearings on legislation to further regulate toxic air pollution.

The Alliance of Textile Care Associations (ATCA) is co-sponsored by the Institute of Industrial Launderers (IIL), the International Fabricare Institute (IFI), and the Textile Care Allied Trades Association (TCATA), who represent the predominantly small business laundry and drycleaning industry nationwide. ATCA is vitally concerned about the regulatory policies and programs of the Environmental Protection Agency (EPA) in implementing the authorities of the Clean Air Act.

ATCA supports the national goal of protecting against adverse effects on human health due to uncontrolled emissions into the ambient air of hazardous air pollutants, as embodied in Section 112 of the Clean Air Act.

While ATCA does not seek nor support legislative changes to the current law, we are pleased to have the opportunity to offer comments on Title V of the Committee Working Paper as reported by your committee in late July.

To begin with, we believe that EPA has performed admirably in implementing its current Section 112 authorities. Those who criticize EPA's progress over the last several years may not fully appreciate the difficult task of concluding, based upon incomplete and often conflicting scientific evidence, which chemical substances are, and which are not, likely to cause cancer in humans. Except for the handful of "known" human carcinogens, which for the most part EPA has already subjected to control requirements, only meager laboratory animal evidence is available for the many other suspected human carcinogens. Rather than subjecting hundreds of chemical substances to needlessly stringent emission limitations, EPA has prudently deferred such regulations until the scientific evidence is sufficient to support controls. In addition, EPA has effectively utilized its other authorities under the Clean Air Act to achieve a significant overall reduction in ambient emissions of air pollutants.

Taken as a whole, the various provisions of Title V could subject hundreds of thousands of this country's businesses, and in some cases private residences, to unprecedented regulatory control without demonstrable benefit. Fulfilling the mandates of Title V would likely overtax federal, state and industry resources and significantly increase the cost of goods and services. In the absence of sufficient benefit, this could actually undermine support for the cause of environmental protection now shared by all.

While there may exist mechanisms for improving EPA's current programs under the Clean Air Act, we are concerned about the sweeping and inflexible amendments proposed in Title V.

Title V establishes an extremely broad and open-ended basis for listing chemicals under Section 112(b). A chemical would be added to the list if it "may reasonably be anticipated to cause adverse effects on human health or the environment." The bill does not place any limitation on the nature or seriousness of such "adverse effects"; accordingly, a vast number of chemicals could be subject to extremely stringent and costly regulation even though they do not present a significant public health or environmental threat. The problem will be compounded by the fact that proposed Section 112(b)(2)(C)(ii) establishes delisting criteria that would be virtually impossible to meet for any substance.

Title V would result in broadly overlapping regulatory coverage, since a substance that qualifies for regulation under a Section 112(b) technology-based standard also could qualify for regulation under a Section 112(c) health-based standard and under the provisions of Section 112(g) dealing with the regulation of pollutants that could cause acute adverse health effects in the event of a sudden release.

Proposed Section 112(b)(7) requires EPA to take regulatory action that will result in a 55 percent reduction in emissions of Section 112(b) pollutants from area sources within ten years. It is not clear whether and how these reductions could be achieved. The impact on many small businesses, however, could be very severe. For example, the laundry and drycleaning industry would be captured by three of the eight area source categories listed in the bill requiring immediate attention by EPA. All launderers and drycleaners utilize small combustion units for steam or hot water and many operate a fleet of delivery vehicles. Drycleaning is a specifically listed category.

Pollutant coverage under the health-based standard provisions of proposed Section 112(c) is overly broad, ambiguous, and overlapping. Under Section 112(c)(1)(B), any air pollutant that is "acutely or chronically toxic" might have to be listed as a hazardous air pollutant, even though the acute or chronic toxic effect is not serious. Moreover, it is possible that a substance would be listed under Section 112(c) even though it is "acutely or chronicallly toxic" only at concentration levels that are not expected to be reached in the ambient air.

Pollutant coverage under proposed Section 112(c) also is objectionable because it includes substances that may cause adverse effects to the environment, even though there is no direct or indirect adverse effect on human health. It is not appropriate to subject such pollutants to the very stringent regulatory regime of Section 112(c). Furthermore, inclusion of such environmental pollutants under Section 112(c) is likely to impede health-based regulation of substances that present significant risks to human health.

ATCA is particularly concerned with the inclusion in Title V of a specified risk level for health-based standards for suspected carcinogens. In sum, ATCA views this as bad policy for several reasons.

Risk levels which result from risk assessments are frequently misunderstood and are easily misapplied as quantitative bases to support standard setting. Using the same data, different scientists will often conclude a different risk to human health depending on the model and underlying assumptions utilized for performing a risk assessment. Recognizing the speculative nature of risk assessments and the inherent variability in the resulting risk levels, depending upon the selected methodology, how then is it appropriate for Congress to select and specify in a statute the required degree of protection for human health in terms of a potential risk to the health of a most exposed individual? By contrast, it may be fully appropriate for Congress to direct EPA to establish risk levels and to develop necessary standards to achieve these levels.

Section 112(c) would require EPA to establish a level of protection against health effects due to exposure to possible and probable human carcinogens such that "most exposed persons" would incur a risk of cancer of no more one in a million (i.e., 10^{-6}). EPA is further directed to treat 10^{-6} as an interim acceptable risk and to provide for even lower acceptable risk levels through standard setting in the future.

As stated above, risk levels are poorly understood and are extremely difficult to express in layman's terms. In an attempt to convey this concept, some have equated a 10^{-6} risk level as shortening each persons lifetime by six seconds. While this characterization is somewhat inaccurate, it does give a sense of just how low a 10^{-6} risk really is.

Another way of looking at the significance of a 10^{-6} risk is by observing that EPA and other federal agencies have repeatedly decided against regulation of substances when the risk to human health is estimated to be 10^{-3} or less. That even this risk level is quite low can be appreciated by the fact that the risk of death from an automobile accident is approximately one in seventy. Also pertinent is the fact that as little as one percent of human cancer cases can be attributed to environmental chemical exposure.

ATCA also strongly objects to the fact that, for the purpose of health-based standards, both possible and probable human carcinogens would be regulated at the same stringent level, 10^{-6} or lesser risk.

Under EPA's risk assessment guidelines, chemicals are generally assigned to the possible human carcinogen category on the basis of insufficient evidence of cancer in animals and no evidence of cancer in humans. In other words, there is the possibility that the chemical could contribute to cancer in humans, but the available evidence is equivocal, at best. Even in the case of some probable human carcinogens, there is no evidence of cancer in humans due to exposure to the chemical substance.

Throughout Title V is a failure to recognize that certain industrial activities involving the use of chemical substances, loosely defined as toxic chemicals, are not amenable to simplistic control strategies. The drycleaning process can serve as a good example.

More than 80 percent of drycleaning plants in this country use perchloroethylene as their drycleaning solvent. The remainder use either a petroleum solvent, banned in virtually all urban areas by fire codes, or trichlorofluoromethane (CFC-113), a chlorofluorocarbon suspected of contributing to depletion of the stratospheric ozone layer. While existing control technology can significantly reduce ambient emissions of perchloroethylene, no available technology can eliminate all emissions. Some equipment designed to virtually eliminate such ambient emissions can actually cause an increase in workplace emission levels, thereby violating OSHA employee exposure limits.

The typical solution for this type of situation is to switch to an alternative chemical substance. Unfortunately, this is not a viable solution for the drycleaning industry. There are no viable alternative solvents to the three currently in use. A switch from perchloroethylene to petroleum solvent is precluded by fire codes and a switch to CFC-113 would not be encouraged nor even be possible if its use becomes restricted as anticipated. Furthermore, even if an alternative were available, drycleaners would have to install expensive new drycleaning equipment since such equipment is solvent specific and cannot be retrofitted for use of a different cleaning solvent.

A final area of major concern to ATCA is the Section 112 permit provisions.

Proposed Section 112(d)(3) calls for the establishment of a complex permit system for the implementation of Section 112 standards. In light of the specificity with which Section 112 standards would be established for individual source categories and subcategories, the imposition of a permit program would be an unnecessary and burdensome complication. It would require the creation of additional bureaucracies at the state and federal levels, would delay implementation of the regulatory program, and would place an additional drag on productive activity in the American economy. Even small areas sources would be obligated to obtain facility emissions permits if regulated under any of the numerous provisions of proposed Section 112.

Additional comments and observations on specific sections of Title V are provided as Attachment A.

Attachment

ATTACHMENT A

CLEAN AIR ACT AMENDMENTS
Title V Provisions

Sec. 112(b)(2)(C)(ii)

Criterion for removing a substance from the list, (i.e., a showing that "the substance will not cause any adverse effects on the health of persons or the environment") is much more stringent than the SARA Section 313(d)(3) criteria for deletions. Under SARA "significant" effects on health or the environment are of concern. Identification of both means of "removal" in (b)(2)(C)(ii) is both confusing and conflicting.

Sec. 112 (b)(3)

While this paragraph seems to require BACT, including consideration of costs and technological feasibility, the more correct reading appears to require lowest achievable emissions rate (LAER). Inclusion of the phrases "including a prohibition of such emissions, if achievable" and "most stringent emission level that is achieved in practice" does not imply that reasonable standards would be considered acceptable.

Sec. 112(b)(4) and (h)

The panoply of discretionary requirements for monitoring, recordkeeping, reporting, corrective action and audits and inspections could result in unnecessary and duplicative requirements. Requirements under RCRA for hazardous waste and underground storage tanks already satisfy many of these provisions.

Paragraph (4)(B) requires that inspection, survey, and audit results be made available to the public, except for trade secret information. Such a requirement would result in unwarranted public scrutiny and is somewhat redundant to information on chemical use, manufacturing and storage, available to the public under SARA Title III.

Paragraph (h) requirements for monitoring pollutants "in the air within the vicinity of the facility" in addition to both point and non-point emissions are potentially sweeping without further specification.

Sec. 112(b)(5)

The five-year-life allowance for existing emission control equipment provides little relief. Capital intensive air pollution emission control programs are generally designed for a much longer useful life.

Sec. 112(b)(6)(A)(i)

There is no reason to believe that EPA could issue emission standards for the eleven identified substances within 18 months of enactment. Shoddy rulemaking with an insufficient opportunity for public comment and meaningful analyses is the only thing that results when unrealistic schedules are imposed by statute.

Sec. 112(b)(7)

The provisions for "area source" emission controls may be touted as merely establishing a national goal, however, the "how" to achieve a 55% reduction in ten years, is not adequately addressed. To achieve any large overall reduction, all area stationary and mobile sources would require significant unrealistic controls. Many area sources are subject to control under other statutory and regulatory authorities already. This is the kind of provision that will be misinterpreted in the future and EPA will be severely criticized for failure to achieve its mandates.

Sec. 112(c)(1)(C) and (c)(2)(A) and (C)

Health based standards are to address "potentially most exposed persons" with an "ample margin of safety" and (in the case of possible and probable carcinogens) reduce the risk to the most exposed individual to no more than "one in one million" or lesser risk.

The stringency of this standard is well beyond that imposed by EPA in its other programs, including its drinking water program. Establishing 10^{-6} as the interim risk level even for substances which are merely suspected carcinogens establishes a terrible precedent for all future health and environmental control programs.

Since cost cannot be considered for health based standards the entire concept of "risk management" is repudiated. The requirement that facilities to be permitted under an interim 10^{-6} standard be subject to public hearings in the states coupled with the statement that such interim standards provide "other than an ample margin of safety for carcinogenic effects" typify the unrealistic approach which underlies this measure.

Sec. 112(g)(4)(E)

The Chemical Safety and Hazards Investigations Board is empowered to investigate "any chemical spill or accident . . . in which there is a fatality or substantial property damage." These powers are not limited to extremely hazardous substances.

STATEMENT OF THE
AMERICAN TEXTILE MANUFACTURERS INSTITUTE

BEFORE
SENATE ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

July 23, 1987

Mr. Chairman, we appreciate the opportunity to submit written comments for the record of the Senate Subcommittee on Environmental Protection in connection with its hearings on toxic air pollution legislation.

The American Textile Manufacturers Institute (ATMI) is the central trade association of domestic textile producers. As such, ATMI and its members are vitally concerned about the role of the Environmental Protection Agency as the federal regulatory agency with jurisdiction over issues involving the Clean Air Act.

At the outset, Mr. Chairman, ATMI supports the national goal of protecting human health from the emissions of hazardous air pollutants as outlined under Section 112 of the Clean Air Act.

While ATMI does not seek nor support legislative changes to the current law, we are pleased to have the opportunity to review Title V of the Clean Air Working paper as reported by your committee last July.

We are concerned that the changes proposed in Title V will only impede the substantial progress already being accomplished at EPA. We believe that EPA has expended considerable time and energy over the last several years improving the air toxics control program under Section 112 of the Clean Air Act. To date, EPA has listed eight pollutants under section 112, and it has established national emissions standards for seven of them. Further, it has published its intent to list ten more pollutants, and national emissions standards for those ten will begin to be proposed in 1988. Additionally, state governments are currently developing control programs for certain hazardous air pollutants, and these proposed changes may delay or conflict with those efforts.

More importantly, EPA's air toxics program is not limited to its efforts under Section 112 of the Clean Air Act. Any VOC or particulate controls, for example, now or soon to be in place under existing authorities have the added benefit of reducing emissions of toxic air pollutants, as would any further VOC controls mandated in the proposed Clean Air Act amendments.

These activities outlined above demonstrate that EPA has in place a comprehensive air toxics control program not to mention the progress that individual states have made.

While there may exist mechanisms for improving the system already in place, we are concerned about the far-reaching and inflexible amendments proposed in Title V.

First, establishing emissions levels under Title V based on the use of a one-in-a-million risk to the most exposed individual standard poses major problems. This value is based on EPA's unit risk estimates, which represent the upper bound, not a most likely estimate of human cancer risk, assuming the chemical is, in fact, a human carcinogen. EPA's plausible upper bound (unit risk) estimate is generated according to the National Academy of Sciences, from some 50 assumptions that, in each instance use the worst-case scenario among the scientifically plausible options. The net result is a final estimate that vastly overstates risk. For many chemicals, EPA has stated that the unit risk estimate represents a "what if" calculation that is not intended as a regulatory standard. The true ambient exposure risk for these chemicals, even assuming they pose a carcinogenic risk, is unknown and may be as low as zero.

A true risk of one-in-a-million may be a valid national long-term goal, but the routine application of the risk assessment methodology to conservatively estimate risk is unnecessary and will be prohibitively expensive.

Another concern exists with the process by which a new substance can be listed versus the delisting of a substance. The Administrator may not deny a petition to list "on the basis of inadequate resources or time for review". To remove a substance from the list, however, a petitioner must show that there is complete, valid and adequate data on the health and environment to support delisting. This method for delisting will only create additional burdens for the agency while delaying real progress in air pollution abatement.

Last, the Chemical Safety and Hazards Investigation Board seriously infringes on existing authorities and duplicates authority already vested within the Occupational Safety and Health Administration and National Transportation Safety Board. The proposed board could investigate manufacturing and production processes, controls and related matters anywhere that any of a larger number of chemical substances is produced, processed, handled, or stored. Many of these substances are likely to be very common in our society as fuels, cleaning solvents, dyes, catalysts and so on. ATMI is concerned that the board's findings would then be broadly available to the public and the competition. The only safeguard, the protection of trade secrets, is limited by overriding health and safety concerns. Additionally, the EPA would likely have similar broad responsibilities in developing regulatory programs regarding manufacturing and distribution operations.

ATMI believes that this could raise serious questions about the part our Federal Government should play in the day-to-day operation of our textile plants. Given the fact that import penetration has reached a record high of 53.8 percent of the apparel and apparel fabric market, we are particularly sensitive to anticompetitive practices. While the American textile industry is regarded today as the most efficient and modern in the world, our government must protect the results of our industry's research and development

-- the resources which have produced our superior efficiency. A foreign competitor could use the authority given under this legislation to pry into one of our most valuable assets -- technology. All the competitor would need to do is raise certain questions before the board about a U.S. business activity or process for which they want to obtain additional information.

Thus, the board could then investigate and would be required to make available to the public information on process designs, operating parameters, technologies, information on planned investments or other improvements, patents and sensitive research and development information. For example, both the House and Senate recently passed intellectual property right protection legislation as amendments to their respective omnibus trade bills.

ATMI supported this legislative effort to close certain loopholes in our patent law, and we are concerned that Title V would counteract the progress we have accomplished thus far in this most important area.

In closing, ATMI believes that before sweeping changes to the current Clean Air law are considered by Congress, the Senate Environment and Public Works Committee should carefully consider all the ramifications.

THE CHLORINE INSTITUTE, INC., 2001 L STREET, N.W., WASHINGTON, D.C. 20036

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Donald S. Pirkle, *Chairman*
Charles E. Stewart, *Vice Chairman*
Dr. Robert G. Smerko, *President*

August 19, 1987

The Honorable George J. Mitchell
Chairman, Environmental Protection
Subcommittee
Committee on Environment
and Public Works
408 Hart Senate Office Building
United States Senate
Washington, DC 20510

Dear Senator Mitchell:

The Chlorine Institute, Inc. is a non-profit trade association whose primary function is to promote safety in chlorine manufacturing, handling and use. As such, preventing chlorine air emissions through improved process design, and minimizing and mitigating the effects of any accidental emissions are primary goals of the Institute. In fact, the vast majority of the Institute's fiscal and personnel resources are devoted to reducing chlorine emissions to the atmosphere.

The Institute's 150 member companies includes major North American chemical companies producing chlorine, several wood pulp and paper mills, chemical companies that repackage and distribute chlorine, and a variety of chlorine industry suppliers and users. The membership includes 33 overseas companies producing chlorine.

This letter presents the Institute's position and comments on Title V (originally introduced as S.1384) of the Committee Working Paper. The Institute's comments are confined to Title V and represent the chlor-alkali industry's perspective on Title V. While the Institute generally agrees with the concerns outlined in EPA's testimony and strongly endorses the oral testimony presented by CMA, our comments further demonstrate why this new legislation will not result in a sound environmental policy for the United States. Further, our testimony describes many of the ongoing programs and activities directed toward achieving our mutual goals.

Section 112 of the original Clean Air Act concentrates on substances that adversely affect human health and provides a definition of hazardous air pollutants to ensure that EPA maintains the appropriate focus. The proposed changes to Section 112 are too broad and automatically requires EPA to consider more than 300 substances as potentially hazardous air pollutants.

Chlorine is a toxic, large-volume commodity chemical. Given these factors, the Institute concludes that chlorine could be classified as a hazardous air pollutant, under the existing Clean Air Act. In fact, the Institute has been working with EPA's Office of Air Quality, Planning and Standards in Research Triangle Park, North Carolina to provide chlorine air emissions data. The Institute also submitted to EPA an extensive critique of EPA's preliminary assessment document on chlorine so that any actions regulating chlorine as a hazardous air pollutant be founded on good science. Moreover, many of our largest member companies provided EPA with comprehensive chlorine emissions data, including duration of rate of emissions, date of emissions, height of the release, diameter of the vent or other source of emissions, the chlorine's exit velocity, the exit stream composition and actual plant locations including longitudes and latitudes for the 21 plants providing the data. In short, the Institute and its member companies are committed to working cooperatively and responsibly with EPA to ensure that any NESHAP (National Emission Standard for Hazardous Air Pollutant) proposed for chlorine be based on scientific and sound information on chlorine air emissions and the resulting health impact.

In addition to the ongoing communications between CI and EPA with respect to chlorine, we are also submitting material on two other substances, asbestos and caustic soda. The chlor-alkali industry has complied with the current asbestos NESHAP and has commented on the proposed changes to the asbestos NESHAP. As asbestos is used to produce chlorine, the Institute and its members are committed to ensuring continued safe work practices relating to asbestos handling and disposal. With regard to caustic soda or sodium hydroxide, a co-product of chlorine production, we have submitted information to EPA on caustic soda emissions. The information was voluntarily provided to EPA's Office of Air Quality, Planning and Standards before EPA proposed gathering such data on emissions of several chemicals, including caustic soda. These data will be collected under the authority of the Toxic Substances Control Act and ultimately used by the Office of Air Quality to determine whether such chemicals should be regulated.

In short, these few examples demonstrate our industry's cooperative efforts to provide EPA with good data and demonstrate our efforts and EPA's ongoing activities regarding chlorine, asbestos, and caustic soda toward the goal of cleaner air.

Our cooperative efforts toward ensuring sound regulations will continue, regardless of the outcome of this legislation. However, we must register our concerns with the legislation's hazardous air pollutant provisions. The legislation dramatically expands Section 112's current health-based definition to include chemicals whose acute or chronic health effects may not necessarily require regulation as hazardous air pollutants. As such, this legislation results in an overly expansive and broad approach towards regulating hazardous air pollutants. Thus, the end result will be muddled and duplicative regulation which serves no one's interests.

With enactment of SARA Title III, Congress established a program to ensure that data be provided by industry to the States and localities to be used for emergency planning and minimizing the likelihood of accidents. With respect to Title III Section 305 activities, EPA staffers, along with representatives from the Institute, other trade associations, companies, and environmental groups have been working cooperatively to develop and implement the program. EPA has selected 21 chemicals, including chlorine, for a review that includes extensive and detailed survey questionnaires and, possibly, plant inspections. Working with EPA, the Institute submitted comments on the questionnaire's content and format, offered to distribute the questionnaire to our member companies on EPA's behalf, and an Institute member company volunteered to "pretest" the questionnaire. Our Section 305 activities with EPA and our member companies continue. We believe that Congress should review Section 305's final report, due in May 1988, before taking further legislative action in this area.

In addition to chemical release reporting under CERCLA and SARA, several OSHA programs, including the hazard communication standard, routine audits of plants' safety systems and programs, and the Special Emphasis Program, provide information on chemicals in the work place and review chemical handling practices in various plants, including some Institute member companies. Thus, these OSHA programs have provided valuable information to employees, the Federal government and the public on workplace practices, employee exposures and management programs. More effort in this area by the government is simply not needed.

The Committee should be aware of one further ongoing effort related to Title III. Headed up by an Institute staffer, a large group of representatives from EPA, FEMA, American Red Cross, the Environmental Policy Institute, the International Association of Fire Chiefs and several business trade associations are coordinating a series of workshops around the country on Title III. This broad-based effort will further educate affected parties — industry, public interest groups and Federal, state, and local government — on their respective obligations under Title III. To our knowledge, this represents an unprecedented cooperative effort by the public and private sectors to educate such a broad-based audience on this significant new law.

Testimony presented by Dr. Fred Millar, Director, Toxic Chemicals Safety and Health Project, Environmental Policy Institute, charged the industry with lack of knowledge about the potential hazards which exist in the event of a major chemical release. In fact, one trade press article on Dr. Millar's testimony indicated that companies have backed away from further research related to Department of Energy tests on dispersion or cloud travel of chemicals released in large amounts.

Contrary to these blanket assertions, the Institute is continuing its activities with regard to chemical cloud travel. For example, the Institute's pamphlet, "Calculating the Area Affected by Chlorine Release", originally published in 1980 and presently in the final stages of a year-long revision, plus our ongoing evaluation of the approaches necessary to further develop industry's knowledge of cloud travel, and visits to the Nevada Test Side to determine whether a chlorine cloud release study is appropriate, are just some of the Institute's extensive activities with regard to reviewing and evaluating chemical releases.

The Institute is particularly proud of its CHLORine Emergency Plan, CHLOREP, administered and coordinated by the Institute. CHLOREP is a program to respond to chlorine emergencies, primarily in transportation. CHLOREP operates seven days a week, 24 hours a day and is manned by trained personnel from CI's member companies. Through CHLOREP, the Institute can minimize the negative impact of a chlorine release through prompt containment of the release. As you would expect, these same people are trained and equipped to deal with an emergency within the plant.

The Institute is troubled by several other proposals in Title V, including the creation of the Chemical Safety and Hazards Investigation Board, the definition of "Best Available Control Technology" the use of "de minimis" and "negligible risk" criteria, and the approach to the listing and regulation of toxic air pollutants. In summary, if enacted, Title V would be counter-productive as it would hamper or halt current and ongoing Agency and industry initiatives already underway to achieve a cleaner, safer environment.

We urge you to reconsider the need for such extensive and burdensome legislation. The Institute appreciates the opportunity to provide the chlor-alkali industry's input on the Senate Committee Working Paper and stands ready to provide the Members of the Committee and staff with further information. We would appreciate it if our comments were made part of the hearing record.

Sincerely,

Robert G. Smerko

Robert G. Smerko

RGS/lkw

cc: Members of the Senate Environmental Protection Subcommittee

IGCI

INDUSTRIAL GAS CLEANING INSTITUTE, INC.
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August 5, 1987

The Honorable George J. Mitchell
Chairman
Subcommittee on Environmental Protection
U.S. Senate
SD-458 Dirksen Senate Office Building
Washington, D. C. 20510

Re: IGCI Testimony on June 17, 1987

Dear Senator Mitchell:

Last June 17, the Industrial Gas Cleaning Institute (IGCI) testified before your Subcommittee on Environmental Protection. We stated that we would submit a document for the record that provided the technical basis for our comments. I have enclosed that document.

Sincerely,

Jeffrey C Smith

Jeffrey C. Smith
Executive Director

JCS:pab
Enclosure
cc: Members of the Senate Subcommittee on
Environmental Protection

ACID RAIN CONTROL BRIEFING DOCUMENT
ON RETROFITTING
FLUE GAS DESULFURIZATION SYSTEMS
TO EXISTING COAL-FIRED BOILERS

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July 1987

NOTE: The following has been excerpted from the above-names report. The report, in its entirety, has been retained in committee files.

I. EXECUTIVE SUMMARY

The Industrial Gas Cleaning Institute (IGCI) is the national association of stationary source air pollution control equipment manufacturers. In this report, IGCI presents an overview of the technology currently available to retrofit existing electric utility coal-fired boilers to meet the requirements of potential acid deposition legislation.

Our emphasis is on the retrofit cost of sulfur dioxide (SO_2) removal using both wet and dry flue gas desulfurization (FGD) technologies. We have focused on the cost of retrofit FGD systems for SO_2 removal in the hope of informing the national debate on legislation to control acid deposition.

In our report, we reach the following general conclusions:

- There are several different ways an affected industrial source may be able to comply with the SO_2 emission reduction requirements of an acid rain bill. The market and technical capability should dictate which control mechanism is used. One important means of SO_2 reduction is FGD retrofit.
- Some estimates of the cost to retrofit existing boilers with FGD systems are overstated.
- Reasons for this overstatement include the use of inappropriately high contingency, indirect, interest, engineering and escalation costs, as well as the description for cost per kilowatt hour as levelized over the life of the plant rather than as first year costs.
- The direct comparison by published cost studies of the average levelized costs of installing and operating the FGD system over its economic life with current (first year) cost of electricity to consumer and industry users may create the mis-impression of a very significant cost impact of retrofitting FGD systems on current electrical bills.
- The cost of any means of compliance should be measured against the cost to society of acid rain damage and the available financial resources of industry and society to protect the environment.

In particular, we found that:

- FGD systems operate with high availability, are reliable, and can operate with sufficient SO_2 removal efficiencies to achieve the SO_2 reductions (10-12 million tons per year) contemplated by most of the pending acid deposition control bills.

- The total installed cost to the utility for the retrofit of FGD systems is significantly lower than some estimates for the cost of new FGD systems equipped with forced oxidation. The estimated total capital cost of retrofitting a wet FGD system is between $150 and $160 per KW of electrical capacity.

- A realistic figure for annualized first year capital and operating costs for such a system is 5 to 6 mills/KWH as opposed to 15 to 20 mills/KWH on a levelized basis reported by some industry sources.

- Assuming (1) 6 mills/KWH, (2) 100,000 MW to be retrofitted (as the utility industry stated is likely under a plan for approximately 10-12 million tons of SO_2 reduction per year), and (3) an average annual capacity factor of 65 percent, then the first year cost would be $3.4 billion, which is less than one-third of the $12 billion average levelized cost that a utility association claimed. If it is assumed because of plant retirement and fuel switching that only 30,000 MW will need to be retrofitted to achieve a 10-12 million ton SO_2 reduction, then the first year cost of retrofit would be about $1 billion.

- The total capital cost of retrofitting a dry FGD system to an existing plant is between $84 and $153/KW depending on whether a new ESP or fabric filter is needed, with first year capital and operating costs of 5 to 6 mills/KWH when firing coals of less than 2 percent sulfur.

- The annual cost to residential customers in the 37 Eastern States of reducing SO_2 emissions by 8 million tons a year by installing FGD systems on the top 50 utility emitters of SO_2 would vary from a low of $8.47 in New York City to a high of $31.76 in Tampa. The average annual increase in the Midwest would be between $15.00 and $25.00.

- Recent proposals calling for $5 billion in acid rain research expenditures over the next five years should be evaluated in light of the availability of current, proven SO_2 reduction technologies. To delay action on the premise that heretofore undeveloped technologies will reduce the costs significantly or at all is questionable.

We conclude that a cooperative effort among the utility industry, the U.S. Environmental Protection Agency, and IGCI members would lead to successful retrofit of FGD systems on existing boilers, while providing the utility with a reliable, cost effective and efficient plant using current fuel supplies.

XI CONCLUSION

There are several ways in which an industrial source may be able to comply with the SO_2 emission reductions in an acid rain bill. The market and technical capability of control mechanisms should dictate which means is chosen. One important way to comply is by retrofitting an FGD system.

Based on the best information available to IGCI, it appears that some of the published costs required to retrofit existing boilers with FGD systems is overstated. This is primarily due to the high contingency and indirect costs that have inflated the capital expenditure needed, and the fact that the costs per kilowatt hour are given as average levelized costs rather than first year costs. Another contributory factor is the high interest and escalation costs used. These figures may have been valid at the time the estimates were made, but they are surely not true today.

The cost of any means of compliance, however, should be measured against the cost to society of acid rain damage, and the financial resources of industry and society to protect the environment. In this regard, it is fair to note that the added cost of an 8 million ton SO_2 reduction would be only 3 percent of the average power cost. In addition, other countries (Japan, Western Europe) are already making this investment.

IGCI feels that a cooperative effort among the utility industry, EPA, and IGCI members, using the most up to date design concepts and system operational data, would show that economical FGD systems can be retrofitted to existing steam generators, while providing the utility with a reliable and efficient plant using current fuel supplies. To delay action on the premise that heretofore undeveloped technologies will reduce the costs of SO_2 removal significantly or at all is questionable.

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